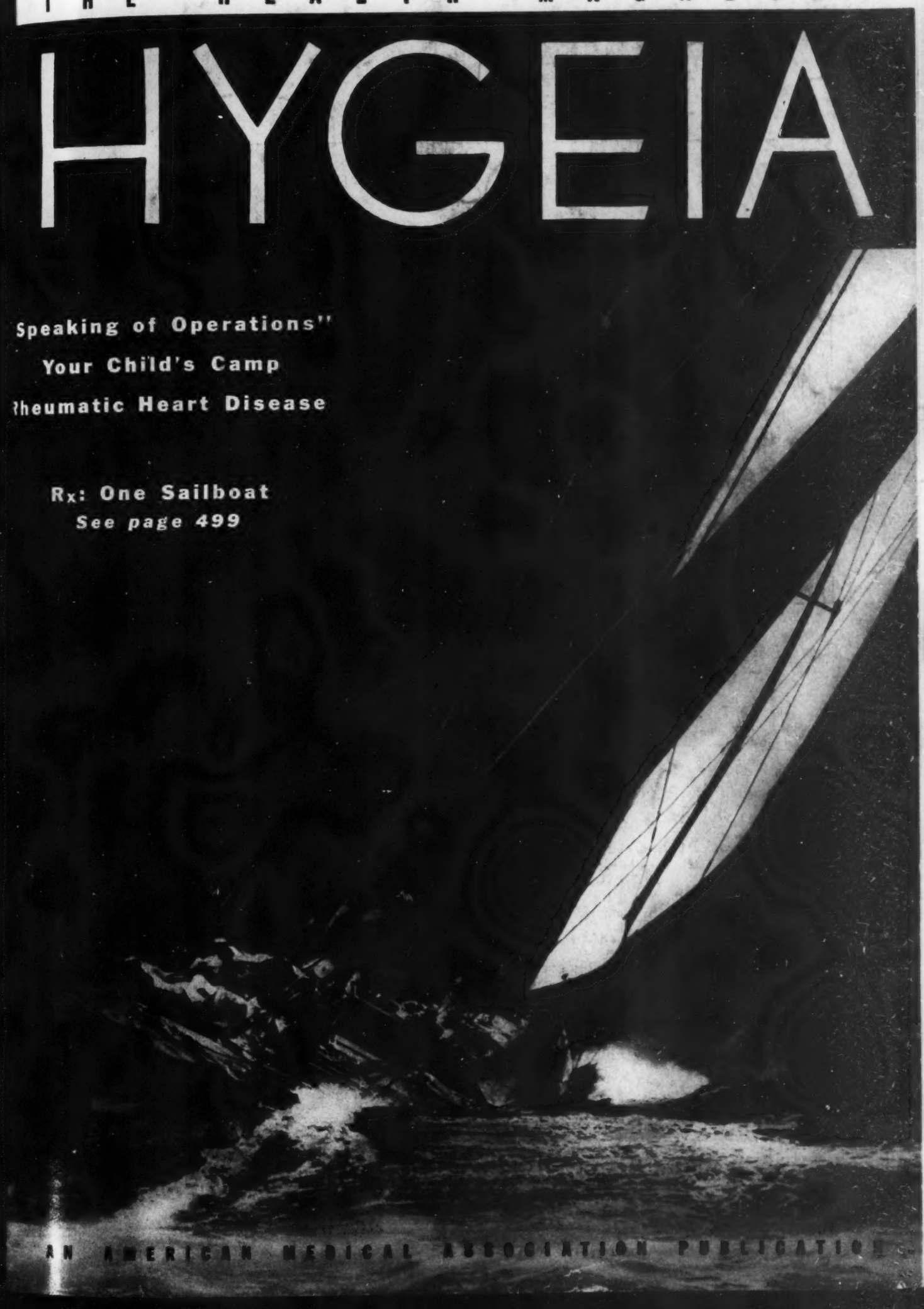
MEDICAL LIBRARY

THE HEALTH MAGAZINE

# HYGEIA



"Speaking of Operations"

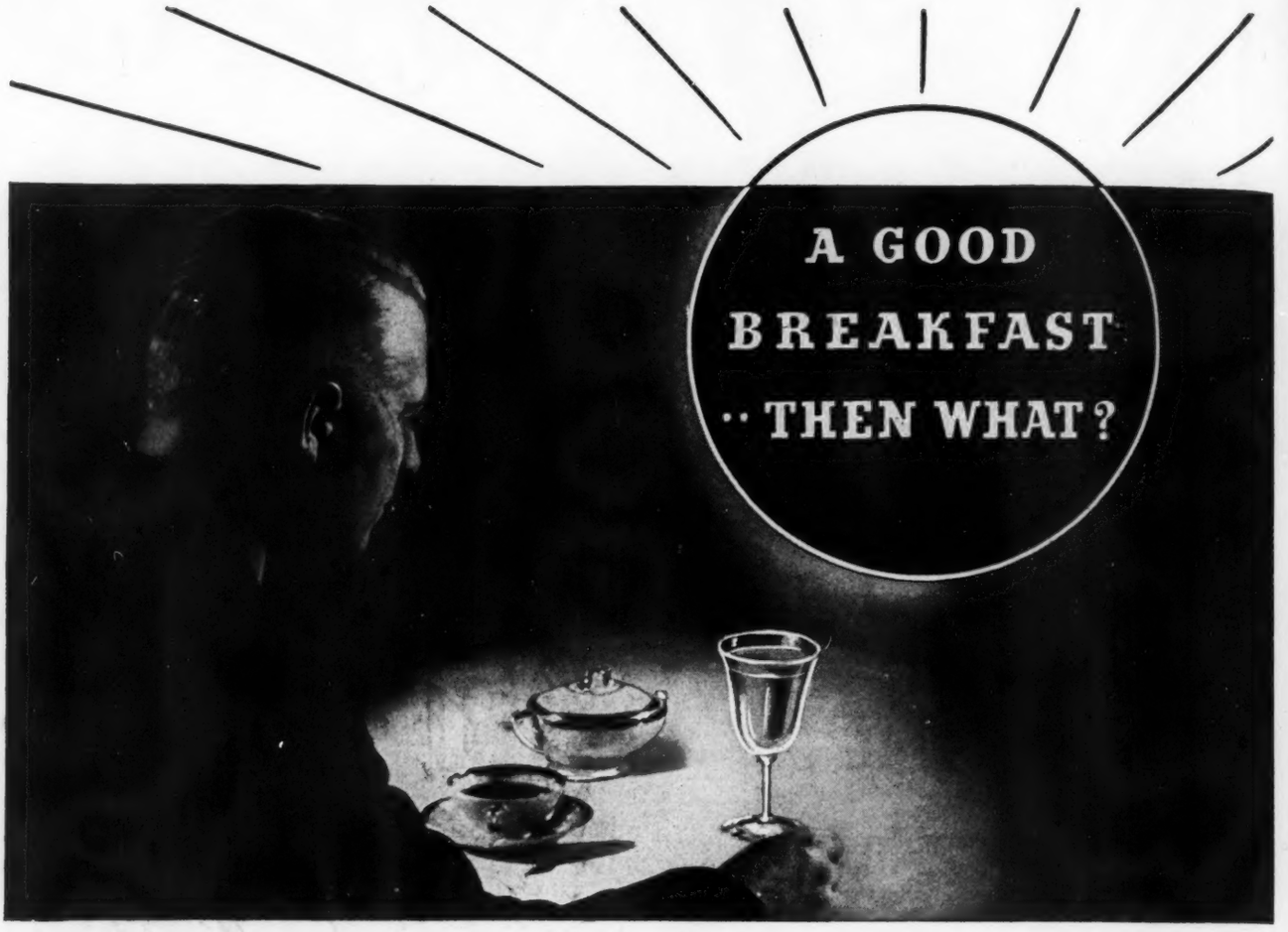
Your Child's Camp

Rheumatic Heart Disease

Rx: One Sailboat

See page 499

AN AMERICAN MEDICAL ASSOCIATION PUBLICATION




## *THIS IS THE LOGICAL TIME . . .*

for the bowel to move because the excrement that has accumulated in the sigmoid colon during the night and the influence of the morning meal tend to start contraction waves which eventually lead to desire for stool.

If, after breakfast, the natural impulse to go to stool is obeyed, the bowel moves normally, but if the call to stool is repeatedly ignored, the bowel muscles become weak and fail to function, resulting in the dull heavy sensation accompanying constipation. Occasionally constipation results from an unbalanced diet, lack of exercise or some other cause. In these cases, your doctor may find it advisable to prescribe the use of Petrolagar as an aid to reestablishing Habit Time for Bowel Movement.

Petrolagar is a mild laxative, accepted by the Council on Pharmacy and Chemistry of the American Medical Association for the treatment of constipation. However, like diet, exercise and all other measures of treatment, Petrolagar should be used on the advice of a physician.

*Petrolagar — Liquid petrolatum 65 cc. emulsified with 0.4 Gm. agar in a menstruum to make 100 cc.*

---

Petrolagar Laboratories, Inc. • 8134 McCormick Boulevard • Chicago, Illinois

# "Summer Complaint"

## *was not a disease; it was a dozen diseases*

"SUMMER COMPLAINT," so mild-sounding in name, once took terrible toll of infants' lives. A medical historian tells us that in London in the hot summers of 1669-71 as many as 2,000 babies died of diarrhea in eight or ten weeks. Indeed, prior to the present century most of the deaths among babies were caused by diarrheal disorders.

Those were the days before bacteriology, before pasteurization of milk, before purification of drinking water, before modern classification of diseases and their treatment. Then, a score or more of diseases were grouped under the name "summer complaint,"—typhoid fever, cholera and dysentery among them. Treatment was multitudinous and fantastic.

Dysentery was supposed to be more frequent among children of the poor who could not afford wine, when actually it was because they lived in filthy, overcrowded tenements infested with disease-bearing bacteria.

Physicians today know that diarrhea must be treated internally but in ancient times abdominal plasters were highly regarded. An old Arabian recipe recommended "applying to the belly fomentations of rose-seed or parsley seed or anise or cumin; or a poultice may be laid on the belly, of cumin and roses steeped in vinegar or of millet boiled with a little vinegar." Even as recently as 1899 a family "doctor book" advocated placing on the child's stomach a spice-plaster made of a teaspoonful each of powdered ginger, cloves, and cinnamon, made into a thick paste with whiskey or brandy. Public education on health topics came to mothers via the patent medicine almanac instead of from an authoritative dependable non-mercenary source like Hygeia.

One of the most pernicious customs was to bleed the baby by placing a live leech on its body. Violent purgatives in doses stronger than would be given to adults today were the rule in treating "summer complaint." An equally vicious habit was the giving of opium, a practice that carries down to the present time with so-called soothing syrups, many of which contain narcotics. The family bottle of paregoric, by masking serious symptoms, sent many an infant to an early grave. Grandmothers disagreed about the treatment of "summer complaint,"—some advocated raw meat while others thought salt meat was best. No wonder that a modern physician writing of that era describes

PORTRAIT OF A SICK CHILD
*by the Dutch painter Gabriel Metsu (1630-1667)*

**The late Professor Ruhräh commented: "The child evidently has a fever, and from the expression one might hazard a guess that the cause was an upset intestinal tract." The Dutch probably called it *zomer ziekte* (summer complaint).**

the baby as "our little hero." One of the pleasanter remedies was "a sugar rosat, softened with rose or pomegranate syrup." Between times, the baby was given a chamois or rubber nipple to suck, and an ivory ring to chew.

The advent of twentieth century medicine was like a great burst of light in the dark world for babies. In the past 30 years the science of pediatrics has made more progress than during the 300 years preceding. Even since 1895 deaths from dysentery have become a fraction of what they once were and could be reduced still more if the public would but accept the knowledge which medical science offers. The modern physician knows how to control colic and diarrhea and typhoid and allergy and dozens of other children's disorders that were once grouped by the laity under the meaningless name of "summer complaint."

BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

*This space is devoted to the interest of better babies by*
MEAD JOHNSON & COMPANY, *Evansville, Ind.*

COPYRIGHT 1935, M. J. & CO.

JUNE 1938 Vol. 16 No. 6

# HYGEIA

## THE HEALTH MAGAZINE

Published and copyrighted, 1938, by the American Medical Association. Edited by Morris Fishbein, M.D.

### PRESENTING

**FREDERICK M. ALLEN, M.D.** professor of internal medicine, New York Polyclinic Medical School and Hospital. Dr. Allen, who is editor of the *Journal of Metabolic Research* and author of numerous books on diabetes, presented this article as a radio talk under the combined auspices of the New York Diabetes Association and the Public Education Committee, New York Academy of Medicine.

**PHYLLIS B. KOEHLER,** executive vice president, Irvington House, a convalescent home for children with heart disease, who has done much to direct the attention of the public to that deadly menace of childhood, rheumatic heart disease.

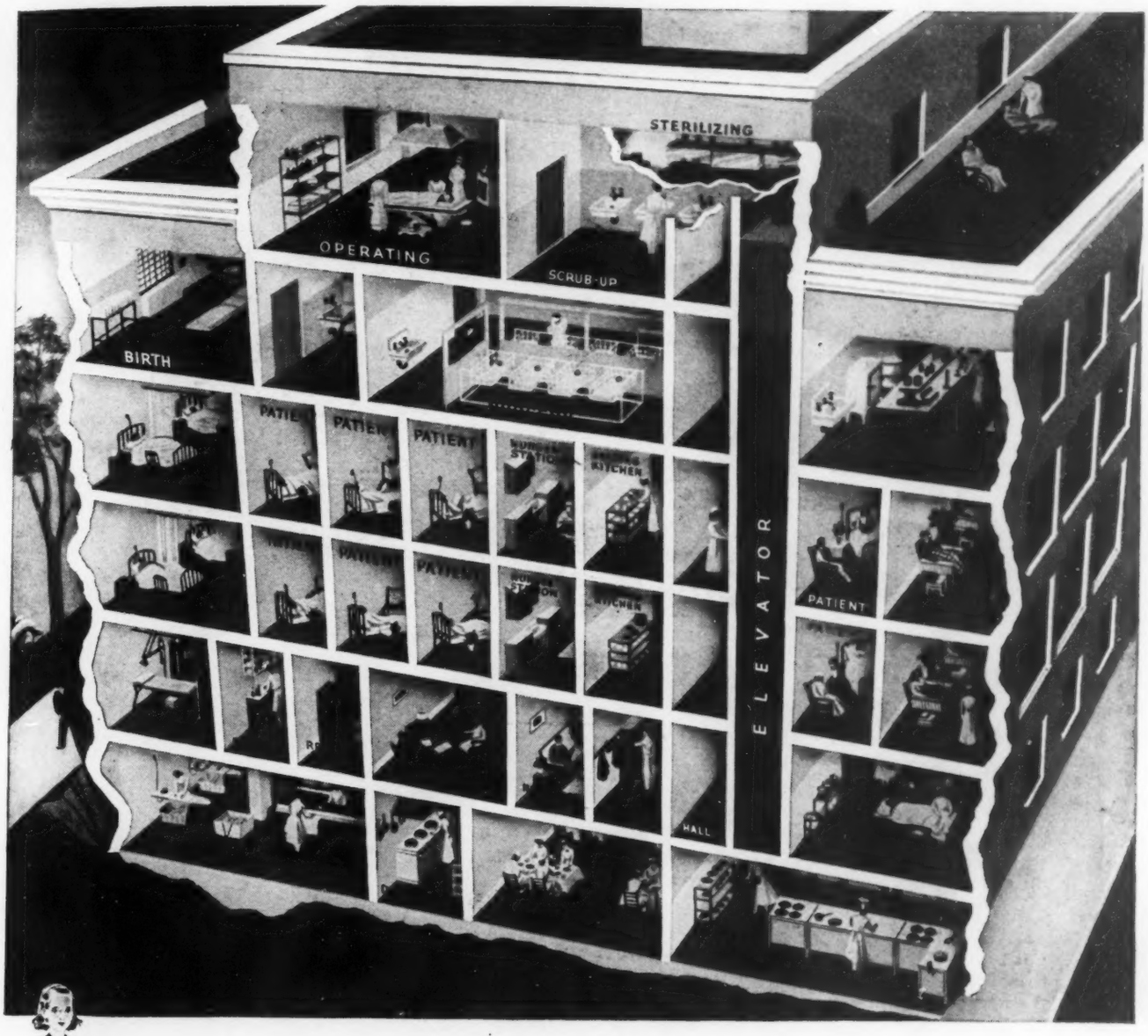
**FRANK HOWARD RICHARDSON, M.D.,** who in this issue and the next discusses a most timely subject—choosing the child's camp. Dr. Richardson's thorough understanding of the physical and psychologic needs of the child has been frequently shown in HYGEIA, most recently in his articles on the adolescent.

**D. P. KENNETT and RICHARD FECHHEIMER,** feature writers, who collaborate to bring to HYGEIA readers a breezy story of life aboard a boat.

### CONTENTS FOR JUNE


| | | |
|---|---|---|
| COVER | Morris Rosenfeld | |
| FRONTISPIECE | | 486 |
| MEDICINE ON PARADE—An Editorial | | 487 |
| "SPEAKING OF OPERATIONS" | Margaret McEachern | 488 |
| YOU DON'T TELL ME—A Poem | Berton Braley | 491 |
| MAKING MEDICINE LESS MYSTERIOUS | Viola Young | 492 |
| "THERE WAS A CROOKED MAN" | F. Josephine Wagner | 495 |
| SCIENTIFIC PROGRESS IN DIABETES | Frederick M. Allen | 496 |
| RX: ONE SAILBOAT | D. P. Kennett and Richard Fechheimer | 499 |
| RHEUMATIC HEART DISEASE | Phyllis B. Koehler | 503 |
| SLEEP | | 507 |
| LIFE'S "PERPETUAL CHILDREN" | Ethel L. Rourke | 512 |
| TUBERCULOSIS UP TO DATE: III | B. P. Potter | 515 |
| THE DOCTOR IS A DETECTIVE | Solomon Strouse | 518 |
| YOU—AND YOUR CHILD'S CAMP: I | Frank Howard Richardson | 521 |
| FIRST CAMP—A Poem | Revah Summersgill | 523 |
| STUTTERING | Herman M. Jahr | 524 |
| PRAYER OF A LAZY INTERN—A Poem | Park J. White Jr. | 527 |
| PARASITE TRICKS: IV | George A. Skinner | 528 |
| EXERCISE: III | Dudley B. Reed | 531 |
| "I'VE GOT A TUMMY ACHE" | Herbert L. Herschensohn | 534 |
| SURGERY DOOR—A Poem | Clarence Edwin Flynn | 537 |
| OUTDOOR LIBRARIES | Cora L. Keagle | 538 |
| FORECAST FOR JULY | | 540 |
| OUR DAILY BREAD | James A. Tobey | 541 |
| VIM, VIGOR AND VEGETABLES | Harriet Morgan Fyler | 544 |
| HEALTHGRAMS | | 546 |
| STREAM POLLUTION | Fred O. Tonney | 547 |
| SCHOOL AND HEALTH | | 551 |
| RADIO ANNOUNCEMENTS | | 554 |
| NEW BOOKS ON HEALTH | | 560 |
| QUESTIONS AND ANSWERS | | 562 |


HYGEIA, The Health Magazine, is published monthly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Yearly subscription price, $2.50; for foreign postage add 75 cents. Single copies, 25 cents. Volume 16, Number 6. Entered as second-class matter March 21, 1923, at the postoffice at Chicago, Ill., under the Acts of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1,103 Act of October 3, 1917, authorized March 21, 1923.
All rights reserved.



# *The* **WONDERLAND** *where Alice got well again*

THE DOCTOR straightened up from his careful examination. "I think we'd better take Alice to the hospital," he said.

"Oh, no," said Alice's mother. "She'll be so unhappy there. She'll miss—"

But she felt a reassuring arm on her shoulder. And heard Alice's father softly say, "The doctor knows best."

So Alice went to the hospital. And now, a short while later, she's the old Alice again, a *well* Alice, an Alice as good as new.

Has she been unhappy in the hospital? Not for a minute. She found it a veritable Wonderland, full of strange devices for helping one, and peopled with good white knights and kind ladies-in-waiting always busy making one comfortable and cheerful.

Are her Father and Mother sorry they let her go? Far from it. For they know in their hearts that but for the hospital Alice would not have been well again so quickly, and might not be with them at all.

* * *

If people really *knew* hospitals there would be no misgivings when the doctor advises hospital care.

Why not visit your hospital, and learn first hand just what goes on inside?

There you will find, *under one roof*, the equipment and facilities science has evolved for the treatment and cure of illness. There you will meet internes, pharmacists, nurses, laboratory workers, and dietitians, all ably supplementing your own physician's efforts. There you will learn that the modern hospital not only is a wonderland of efficient care; but also a haven of peace, friendliness, and sympathy for the sick.

© 1938 Parke, Davis & Co.

* * *

PARKE, DAVIS & COMPANY
*Detroit, Michigan*

*R. I. Nesmith*

# City Serenade to Summer

EDITORIAL

# MEDICINE ON PARADE

ONCE EACH YEAR the physicians of the United States, as represented by the greatest organization of all of them, assemble in an annual session. The occasion is the meeting of the American Medical Association, which now includes approximately 110,000 of the physicians licensed to practice medicine in this country. For an entire week they devote themselves to the problems of distribution of medical service, legislation affecting the medical profession and policies which are to guide medicine for the coming year.

These problems are considered by the House of Delegates of the American Medical Association. The House of Delegates is composed of delegates who are elected by the state medical societies in proportion to the number of physicians who hold membership. The houses of delegates of the state medical societies are bodies of delegates elected by the individual counties. Thus, the American Medical Association is a truly representative organization. All the policies of the Association are established by the House of Delegates. These policies are made effective by the actions of the Board of Trustees of the Association and other official bodies.

## LATEST MEDICAL ADVANCES

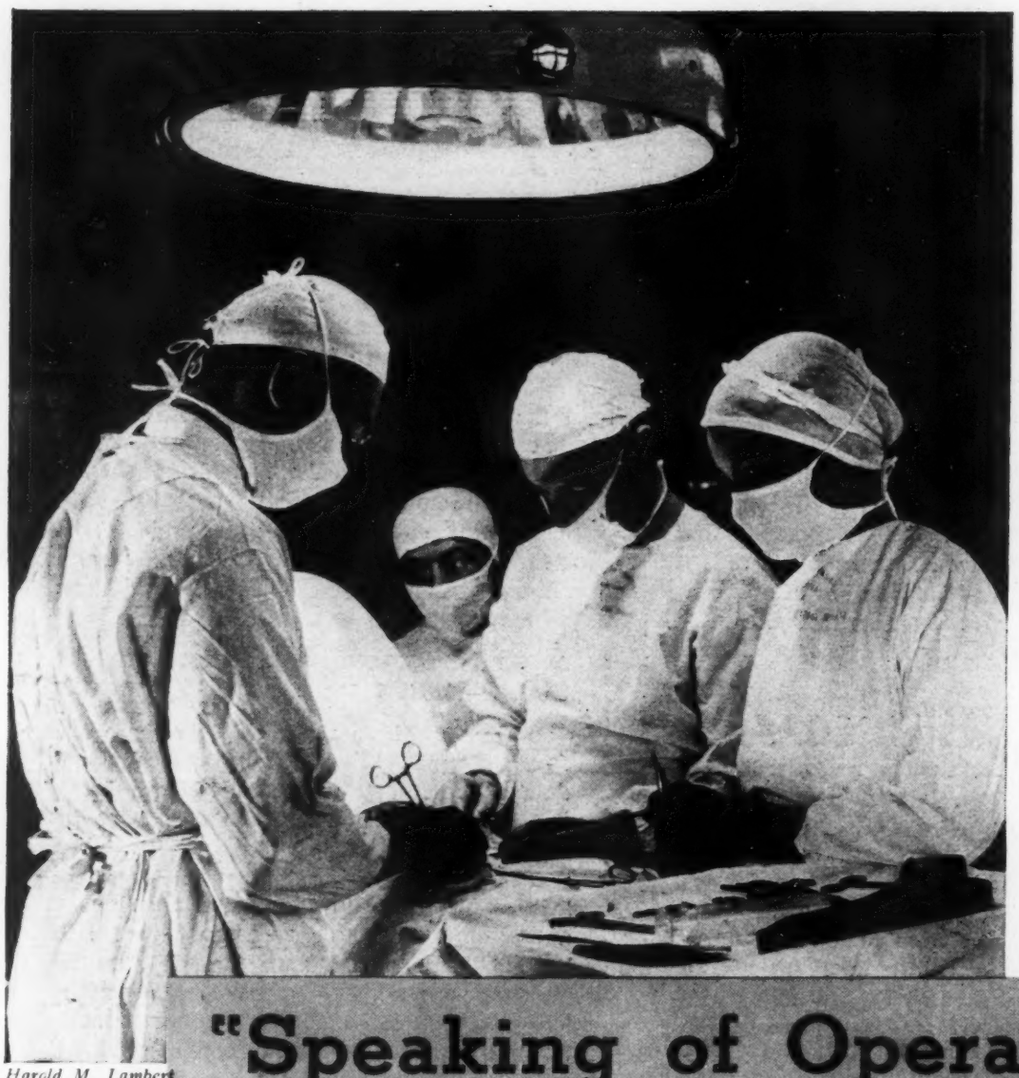
A series of clinical lectures which occupy two days of the session brings to the attention of the listeners records of the latest advances in diagnosis and treatment as revealed by competent authorities. A special session is devoted to health problems in education. In this meeting, physicians and educators combine to consider the problems of health in the schools, the teachings of health, the teaching of sex knowledge and similar matters. Thereafter the Association divides itself into sixteen sections devoted to all the medical specialties. In each of these sections from eighteen to twenty manuscripts are read, dealing with the newest discoveries in medical practice. In several instances an entire session is devoted to a single topic of current interest. This year the special problems to be considered are those dealing with the diseases of the blood, the diseases occurring in industry, the new insulin shock and metrazol treatment for dementia praecox and various diseases of the glands.

Among the most significant of all the features of the annual session is the Scientific Exhibit. This year there are to be two special exhibits dealing with anesthesia, including the various drugs that are used for inhalation, those that are injected under the skin and those that are injected into the blood; there is also to be an exhibit on fractures in which more than fifty of the leading specialists in this subject will demonstrate how plaster of paris is applied and how fractures of the spine and of the wrist are diagnosed and treated.

## SPECIAL EXHIBITS

In addition to these main exhibits there are more than a hundred booths in which individual physicians show how new methods are being developed for the treatment of diabetes; how the glands may be affected by substances taken internally; how new surgical procedures are used in relationship to tumors of the breast, infections of the chest, cancer and injuries to the brain. There are also special exhibits on the new plastic surgery that is used in repairing persons damaged in industry or in motor accidents and sometimes for cosmetic purposes. All the newer methods involved in childbirth are to be revealed, and there are special exhibits dealing with the problems associated with the deaths of premature infants or of babies at birth. All the newer procedures related to the eye, ear, nose and throat, to the care of children, to nervous and mental diseases, skin diseases, industrial diseases, diseases of the genito-urinary tract, the stomach and intestines and of the bones and joints are shown in actual demonstrations by men who have been doing research work throughout the year. In this exhibit also all the national organizations which correlate the work of the doctor with the public prepare exhibits as to their methods and their objectives. Here are exhibits by the Children's Bureau in the Department of Labor, the American Heart Association, the National Tuberculosis Association, the American Society for the Control of Cancer, the National Society for the Prevention of Blindness, the American Social Hygiene Association and many other groups who are helping to extend to the public the knowledge of what modern medicine is able to provide.

Here indeed is medicine on parade—an objective lesson of how medicine assumes its obligation for the care of the sick and how it fulfils that obligation.



*Harold M. Lambert*

# "Speaking of Operations"

IF YOU no longer enjoy talking about that wonderful operation of yours, this essay on "cutting up" may bore you. But if your friends still look up to you with respect for the ordeal you suffered—"the doctor said it was the most delicate case he ever handled, my dear"—you may find a few facts to pass along which will help stamp out fears and prejudices that misunderstanding too long has associated with the operating room.

To the layman the hospital operating room, with its brittle-bright light flooding an imposing array of sinister instruments, is something to dread. Yet it is a miraculous temple of hope for the sick. Every means developed by modern science is centralized there to bring relief to the suffering.

And secretly Mr. Average Man admits that he would like to have an operation. It would break that oppressive monotony of his workaday life. It would be a great adventure that he could live over and over in his daydreams.

But false information passed around in teacup circles and locker rooms causes no end of trouble for the doctor of a patient who must have an operation. There are the stories of sponges left in the abdominal cavity. The mere word "sponge" calls up a picture of that indescribable mass used to clean the family car. Some one volunteers the information that at his operation he heard the doctor asking for a "dirty nurse." Horrors! And some person in the group always has a friend who has a friend who knew about a case in which "too much ether was given and the patient died, but the hospital hushed it up." Naturally the poor person scheduled for an operation becomes jittery. Will he be safe? Can he trust his doctor? Little misgivings are magnified into giant-like doubts and suspicions. It is unnecessarily cruel to subject a person in poor health to such old wives' tales. He should know that he has little to worry about if his surgeon and hospital are reputable. More than a million surgical operations are performed each year, with but a small mortality. Every practicing surgeon has met the requirements of the most exacting apprenticeship of any profession or calling.

Miracles happen daily in operating rooms. Each day, surgeons face seemingly hopeless cases, but they solve them by ingenious new methods.

The hospital of today differs greatly from the hospital of yesterday. Yesterday an operation was more or less a one-man affair. The doctor could work behind closed doors. What he removed from the patient, and how and why, seemingly was nobody's business but his own. Once the patient had paid his bill and departed, the hospital promptly forgot him. However, in occasional light moments the doctor might present him with a bottle containing the appendix that once was his. Frequently other tissues removed were burned or thrown away. No record of value was kept by the hospital.

Today there is fine team play in the modern hospital. In the operating room there are the surgeon-in-chief, the anesthetist, the scrub-up nurse, the first and second operating assistants and the nurse in charge of the patient. There even is a stenographer available who can take notes as the doctor describes the progress of the operation. Protecting the patient on the table, he tells the story of what he is doing and why. There also is close connection between the surgical clinic and the laboratory. Finally, complete records of each case are compiled and kept available for discussion and reference.

The American Medical Association by holding rigid standards for medical colleges and hospitals provides thorough training for all surgeons and other physicians whose skill must be focused on the operation. Thus the pathologist, the radiologist and other specialists, as well as the surgeon and the general practitioner who decided on the need for operation, each had opportunity to gain this necessary fundamental training and skill.

To further safeguard the patient, the Association maintains thorough examination of hospitals and issues lists of those approved for internship and for training of specialists.

To the American College of Surgeons goes great credit for improvement in hospital practice. This organization has helped in establishing rules by which the surgeons and other physicians control surgical procedures. This means a maximum of safety and benefit to the patient. Approval by the College entails meeting the following minimum regulations:

1. All physicians and surgeons who practice in the hospital must be considered, as far as obeying rules is concerned, as members of the staff.
2. There must be no fee splitting.
3. There must be staff meetings, and the staff and all practicing physicians in the hospital must review and analyze the hospital work.
4. A complete history of each case, together with autopsy observations when necessary, must be kept in accessible manner.
5. There must be a pathologic service in charge of a physician-pathologist who supervises all tests and examinations and consults with the other physicians and surgeons.

There is more color and drama in the progress of surgery during the past century than in the most romantic book. There have been great individual discoveries and laboratory research. The four greatest advancements are: (1) the discovery and development of anesthesia; (2) the discovery and development of methods of antisepsis and asepsis; (3) the prevention and treatment of surgical shock, and (4) treatment of hemorrhage by blood transfusion.

The dangers of the ancient triple menace of the operating room—shock, hemorrhage and infection—have been virtually eliminated. Transfusion of blood is employed to combat shock and hemorrhage. It also is used to build up a patient so weakened by disease that operation otherwise would be impossible. Shock also can be prevented. A combination of anesthetics is used to cover every nerve of the patient. However, it does not eliminate the damaging effects of the emotion of worry and fear preceding the operation. This emotion, like shock, affects every organ and every cell of the body. But modern medical science has set up a system to offset it. It includes judicious use of sedative drugs, grouping of nursing care and management, nerve blocking and harmless anesthetics. And it attempts to exclude all harmful stimuli, reducing not only mortality but disabling neuroses and psychoses.

There are certain facts every person should know about general operative procedure. This procedure, not understood by the layman, often is so misinterpreted that it leads to a general distrust of the entire medical profession.

First there is the danger of infection. Just what is done to insure complete protection of the patient? Early in the nineteenth century, surgical antisepsis was little known. Infection of all operative wounds was taken for granted. It simply went along with the operation. Today infection is the exception to the rule. Nothing is left to chance. Instruments are boiled, towels are baked, and catgut and other suture material are put through painstaking disinfection.

The operating surgeon and his assistants scrub their hands vigorously and don rubber gloves. Many patients wonder at this cleansing since gloves are worn. They do not know that no surgeon depends on rubber gloves to protect the patient from infection that might come from his hands. The gloves may break during the operation, or they may be pricked by an

By MARGARET McEACHERN

instrument, therefore the skin underneath them must be kept as sterile as possible.

The patient also has his share of scrubbing. He is washed, shaved and disinfected thoroughly. Here again patients are bewildered at the procedure. For instance, they cannot understand why the entire abdomen was subjected to the discomfort of having alcohol and ether rubbed on a raw surface when the wound was only 2 inches long and way down on the right side. The surgeon never prepares only the small portion of the skin he intends to cut. He never knows until the incision is made and the abdominal contents examined whether the opening will have to be enlarged or whether another incision will have to be made. This may seem like unnecessary preparation, but it is done to eliminate one source of operative infection, the skin and hair cups. The patient is further protected by having his skin thoroughly painted with tincture of iodine or other antiseptic preparations.

As further protection to the patient, he has a "dirty nurse." She's really a nice, clean girl and is dirty only in the surgical sense. There must be some one present to handle things that are not surgically clean. She pushes away tables, throws away discarded material and performs a dozen other little jobs which the scrubbed-up nurses could not do without losing their surgical cleanliness.

This is how you are prepared for that wonderful operation of yours. You are wheeled into the operating room where the surgeon, assistants and nurses are waiting. Their hands are held up and held together under sterile towels so they touch nothing. The dirty nurse uncovers the operative field so you can be scrubbed and made as spotless as your linen. Then one of the clean nurses covers your chest and legs with sterile sheets. The abdomen is left uncovered, and one of the assistants does the painting with tincture of iodine or other antiseptic solution. You then are covered with another sterilized sheet, in the center of which is a neatly bound opening for the operative field. Small sterile towels are laid around the opening, sometimes several layers of them. Could any more precautions be taken to insure your safety?

As for the danger of having a sponge sewed up inside you—let it be made clear that a sponge is not an ordinary sponge but simply a large square of many folds of gauze. Such an accident is prevented today by attaching to each sponge a double strand of tape, to the end of which a large metal ring is fastened with a slip knot. The ring is left well outside the wound, the tape being long enough to allow the sponge to reach whatever part of the cavity it is protecting. The sponges are used to expose the operative field, control hemorrhage and protect healthy tissues against the spread of infection. They are attached to the end of a long forceps and are not left in the wound. When the surgeon has finished his work the protective sponges are removed and checked off by the metal rings.

Most patients are worried about the taking of an anesthetic. They fear that the anesthetist will not know when they have had enough and that they will never wake up again. That is needless worry. The anesthetist has many ways of testing the completeness of a patient's unconsciousness. He uses the nervous responses which are independent of the action of the mind. The eye, in the reaction of the pupil, is a good guide, as are also the type of breathing, rate, degree of relaxation, pulse rate and blood pressure, all of which are checked frequently during the operation. Great progress has been made in the administration of anesthetics. The painlessness originally secured by inhalation anesthesia may now be achieved in some instances by local, regional or spinal anesthesis or by any combination of them with inhalation anesthesia. Patients also wonder why they are not given any food before an operation. Some complain they were literally starved. This "starving" is done only to prevent nausea. Before a patient enters the operating room he is given a hypodermic which contains a small dose of an appropriate sedative drug. It quiets him during the giving of the anesthetic and reduces the production of saliva, which interferes with breathing and inconveniences the anesthetist.

The prospect of suffering deep pain frightens many patients. Naturally there must be some pain, but medical science has reduced it to a minimum. General pain and discomfort experienced after an operation are often due to shock. The shock is greater if the operation is prolonged or if there is much handling of the organs. Extreme shock, which acts like a severe hemorrhage, is rare today. Every effort is made to shorten the time of operation and to protect the organs from exposure to the air and from unnecessary handling. They are kept covered with warm towels wet with a salt solution so near the composition of the body fluids that it does not allow any evaporation or shrinkage.

The person who has been advised by his doctor that he should have an operation should not immediately consult his friends as to the advisability. In such an instance, the doctor is the friend, and the "friends" usually are well meaning but misinformed persons who do more harm than good with their garbled accounts of *their* operation and its complications. If an operation is necessary, why not consider it a great adventure, give the doctor your wholehearted cooperation and gather intelligent information which you can pass along when again you hear that familiar phrase "speaking of operations."

## YOU (OR, YES, YOU DO)

*Your nerves are aquiver,*
*Your eyes full of specks?*
*The state of your liver*
*Is very complex?*
*Your stomach condition*
*Is terribly queer?*
*Well, tell your physician,*
*You* PAY *him to hear.*

*Your last operation*
*May thrill you a lot,*
*But—as conversation*
*It isn't so hot.*
*Though friends are polite in*
*Your grim, clammy clutch,*
*Your glands do not brighten*
*Their lives very much.*

*Not softies nor cynics*
*Will get many thrills*
*By acting as clinics*
*On you and your ills.*
*Your spleen is too spleeny?*
*(Whatever that means)*
*Well—tell it to Sweeney,*
*Or tell the marines.*

*Your bad heart condition,*
*Your nerves that go "phut"*
*Are for your physician—*
*And no one else but!*
*And if you are yearning*
*To tell 'em to me*
*I'll charge—what I'm earning—*
*A medical fee!*

**By BERTON BRALEY**

HOW EXPERIMENTAL RESEARCH IS CARRIED ON IN COMBATING INFECTIOUS DISEASE WILL BE SHOWN AT THE GOLDEN GATE INTERNATIONAL EXPOSITION IN 1939.

# Making Medicine Less Mysterious

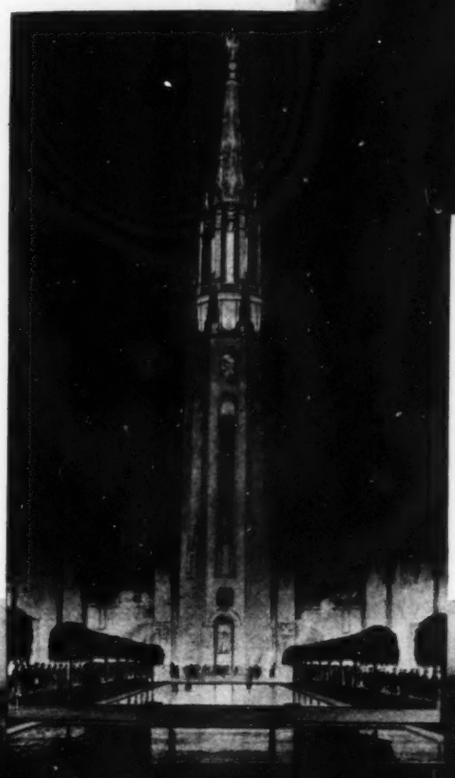
WHEN THE VISITOR to the Golden Gate International Exposition which is to be held on San Francisco Bay in 1939 enters the Hall of Science he will be given ample opportunity to rid himself of the many harmful and unnecessary prejudices which have heretofore formed so large a part of the average citizen's opinion of medicine and science.

The directors realized, however, that if the education exhibits were to be of even small benefit to the layman-visitor they must not only be presented so as to satisfy the need for academic accuracy but also be shown so that every one will go away happy in the thought that the evidence represented by the various exhibits was substantiated by sound facts which he could readily understand. The men who planned the education features of the fair met these requirements so far as they were able to do so.

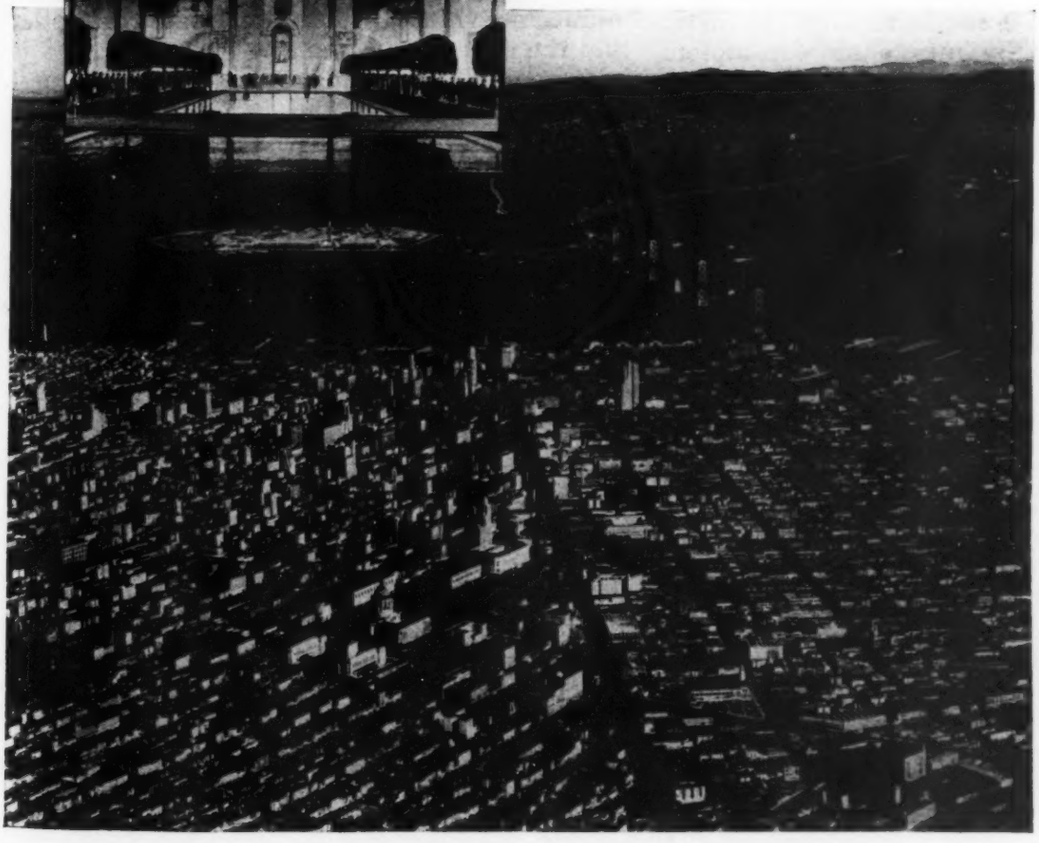
As a result the layman, unhampered by a profusion of technical terms which to him are meaningless, will be shown not only the great discoveries which have been made by experts in medical and scientific research but how this knowledge can be successfully applied to his own case. Moreover, the information so gained will bear the stamp of unquestionable authenticity because the greatest universities in the country, as well as the major proportion of public health agencies, are combining forces and planning to present actual working exhibits of the processes of science in such a fashion that the subject matter can be readily understood

**By VIOLA YOUNG**

ONE OF THE EXHIBITS IN THE HALL OF SCIENCE WILL SHOW THE SKELETAL GROWTH OF THE HUMAN EMBRYO BEFORE BIRTH.



THE "TOWER OF THE SUN," LEFT, WILL DOMINATE THE ARCHITECTURAL SCHEME OF THE GOLDEN GATE INTERNATIONAL EXPOSITION. IT IS CAPPED BY A PHOENIX, THE TRADITIONAL SAN FRANCISCO SYMBOL.



AN AERIAL VIEW OF SAN FRANCISCO SHOWS "TREASURE ISLAND," UPPER LEFT, SCENE OF THE 1939 WORLD'S FAIR.

by elementary school children. As a matter of fact, the appeal to the school child was a vital factor in the planning of every exhibit in this building. Educators will bring groups of school children here so that they may gain a better understanding of the methods which can be employed to safeguard health, convert waste materials into useful commodities and obtain more accurate and thorough knowledge of the evolution of animal and plant life than is possible under ordinary circumstances.

Among the sponsors of these exhibits will be found the University of California and the Mayo Foundation as well as the American Medical Association, the American Dental Association and the American Public Health Association.

The health exhibits will undoubtedly represent the highest point of interest for many visitors to the fair. The majority of these exhibits will be devoted to the promotion of the fact that it is much cheaper to prevent disease than it is to get sick and then call a doctor, and the demonstrations will be presented in such a fashion that it will not take an academic mind to appreciate them. The visitor will see how diseases are started and what can be done to prevent infection and the spread of disease. He will be shown actual bacteria, alive, and will see real hormones and vitamins purified in crystalline form. He will also see how they affect him.

In order to give a definite form to the health exhibits, the visitor will be given an opportunity to see how the body is built, to see how it is developed from "zero time" to birth. This will be done by means of a complete set of skeletons, from six weeks on up, as a part of the University of California exhibits.

The complete story of the evolution of animal and plant life will form the basis for another exhibit which will relate in detail the actual process of life development, on the animal side from one-celled animals to man himself and on the plant side from a bacterium to an orchid.

Plants that can be grown without sun and soil will be grown in "chemical gardens." These plants will be placed in a tailor-made water solution which contains all the food elements necessary to their growth. Visitors will see that these chemical gardens can yield in some cases more than a thousand times the amount of produce obtained by ordinary gardening methods.

There will be an astronomy exhibit in which will be amassed the best new photographs from which a close-up may be obtained of distant universes, billions of miles away.

Chemistry, like medicine, has always been from the layman's standpoint the epitome of mystery. Few men know the practical value of the simplest chemistry; probably fewer realize how important it is when applied to the salvaging of apparently waste materials.

The chemistry exhibit will emphasize the importance of this knowledge by showing how much of the stuff thrown away on the farm as waste can be turned through proper chemical treatment into synthetic plastics, dyes, medicines and drugs, explosives and synthetic furniture and other valuable industrial commodities.

Sugar can be extracted in almost pure form from these "waste" plants by chemical treatment. If the chemist adds hydrogen and then some "nitro" groups he obtains a compound which is probably even more powerful than nitroglycerin for explosives. From this also comes vitamin C, used to prevent scurvy and similar weaknesses of the blood vessels. Cellulose, the fibrous material from these plants, the source of many explosives, will also be used to create paint, varnishes, lacquers, photographs and even synthetic plastics like bakelite, used in telephones, desk tops, office files, ash trays, the buttons on your clothes.

In addition the visitor will see how living microbes are used in place of chemical treatment to produce valuable material from the same base—sugar. He will learn that not all microbes cause disease, that many of them are valuable in dozens of fields of medicine and industry. As an example, when a microbe acts on waste sugar the result can be used in beer and alcohol, the acid of vinegar and compounds used in the manufacture of synthetic flavors. One of the best of these is a flavor for oleomargerine which tastes so much like real butter that the difference cannot be detected.

The manufacture of solvents used in almost all the modern industries is valued in billions of dollars and is the basis of modern chemistry.

All the chemistry exhibits have been designed with the same careful attention to detail which predominates the medical section. Here, as in the other case, the visitor will be shown how these microbes work and how these products are made. He will be shown that these bacteria never wear out. They work twenty-four hours a day, and when one of them dies his place is immediately taken by hundreds of his fellows; and every day they can be counted on to do the same thing.

---

*Another project in "making medicine less mysterious" will be offered June 15, when a broadcast from the American Medical Association meeting at San Francisco will give highlights of medical progress. (See page 557.) Further information on health exhibits of national interest will appear from time to time in* HYGEIA.

---

# "There Was a Crooked Man"

**By F. JOSEPHINE WAGNER**

UNFORTUNATELY we are still raising children into "crooked" men and "crooked" women. To what extent are parents able to help prevent these poor postural developments which so many children have today? Undeniably, much aid can be derived from the early training and treatment of the child. Perhaps a few examples of incorrect procedure and the remedy therefor, during both infancy and childhood, will help busy parents avoid the dangers of poor posture for their children.

The heavy, triangular-shaped diapers were and unfortunately still are responsible for many cases of bowlegs in children. The tiny bones, still soft, are unable to withstand the constant pressure exerted by a heavy, bulky cloth. In order that a child may lie without this pressure against his legs, it is necessary for him to contort himself into an unnatural, spread-eagle position; and since this too is uncomfortable, the child receives sufficient pressure on his thighs to cause them to bow. This can be avoided by using rectangularly folded diapers.

Carrying or holding children without proper support for the head and back is another cause of faulty bone development, as the weight of the baby's body is forced on a bone structure not yet strong enough for its support.

What mother and father have not waited impatiently for the day when *their* baby shall take his first steps? And that is an important day in the life of any baby. So important a day is it that it should not be hurried by so much as a week. Nature makes a baby crawl because his legs are unable to support his body when he is standing upright. Time is allowed for the bones and muscles to develop. If this development is not sufficient when the child starts walking, the leg bones will suffer, with the result that the child will be handicapped through life by bowlegs or knock-knees. The bones of a child's body do not harden shortly after birth. Indeed it is some years after adolescence before the bones attain their full degree of hardness. For this reason extreme caution is needed to avoid too much strain on an immature part.

As the baby grows older and begins to accompany his parents as they walk, a "harness" should be used to prevent the weakening of the shoulder socket and the twisting of the spine, known as scoliosis, which may result if one arm is stretched above the baby's head. A 2 or 3 inch lateral displacement of the spine is often caused by this handholding. Obviously this results in a displacement and pressure on such organs as heart, lungs, liver, stomach and intestines.

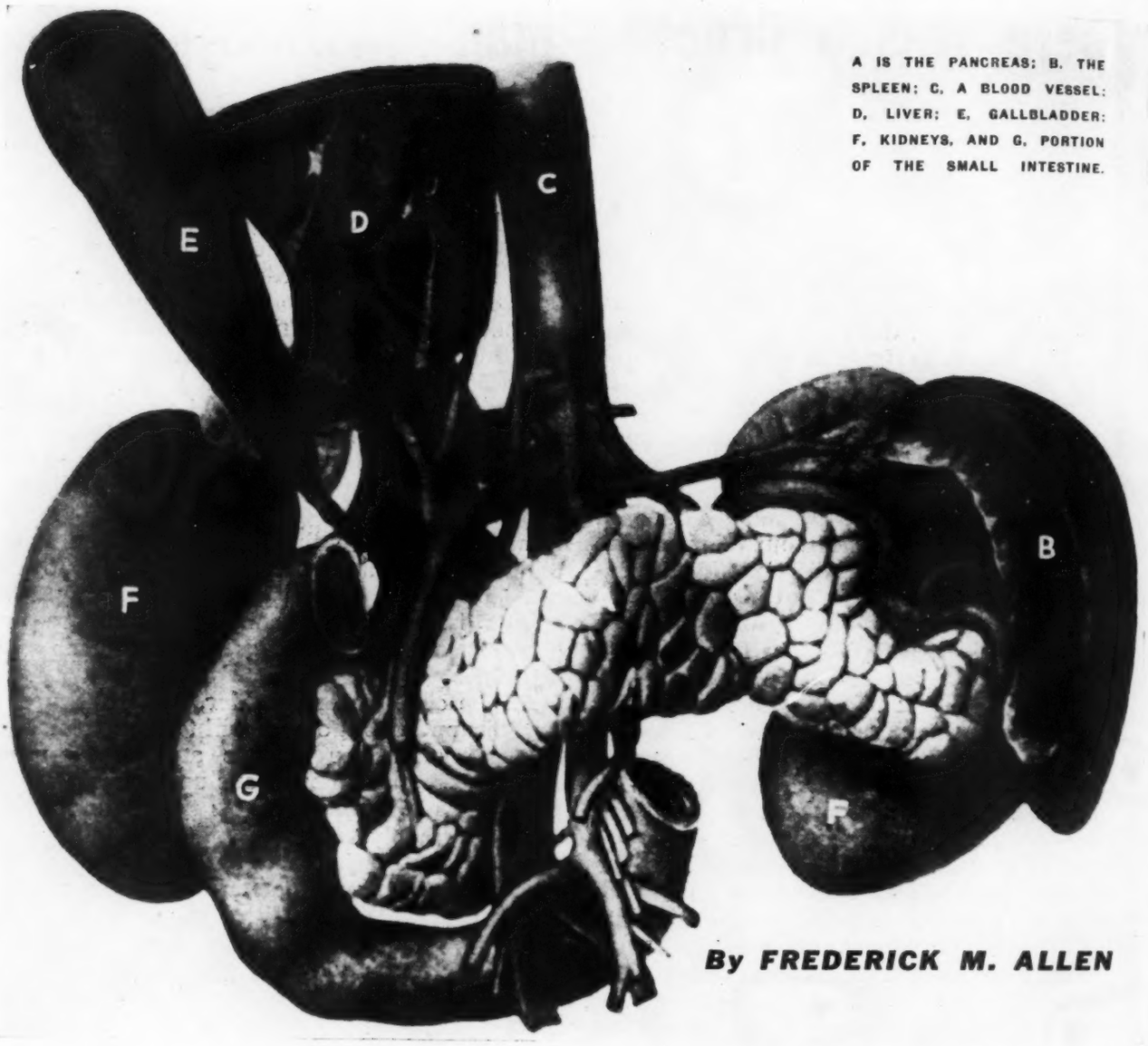
As the child becomes older, these difficulties will disappear, but others will take their places.

Scooters, coaster wagons and skates used singly are equally dangerous unless a wise and well informed mother insists that both feet be used alternately.

Books, bags, brief cases and packages should be carried one day in one arm and the next day in the other. While all this involves considerable early training, the results more than justify the time expended, as good posture adds immeasurably to both the health and the appearance of every individual.

RECTANGULARLY FOLDED DIAPERS AVOID THE UNCOMFORTABLE PRESSURE AND BOWING OF LEGS ASSOCIATED WITH TRIANGULAR DIAPERS.

*Ewing Galloway*




A IS THE PANCREAS; B, THE SPLEEN; C, A BLOOD VESSEL; D, LIVER; E, GALLBLADDER; F, KIDNEYS, AND G, PORTION OF THE SMALL INTESTINE.

By FREDERICK M. ALLEN

# Scientific Progress in DIABETES

DIABETES IS an ancient disease. We can imagine the mysterious affliction and deaths, not averted by incantations or sacrifices to the gods, in the civilizations of Chaldea and Egypt, of India and China for untold centuries before the dawn of history. It was first recognized as a distinct ailment by physicians in the Roman Empire about the time of Christ, merely as far as diagnosis was possible from excessive thirst and urine. Nothing of importance was added for the next 1,600 years, when Thomas Willis furnished a better means of diagnosis; namely, the sweet taste of the urine. Advance was now more rapid, because in a little over one century, in 1796, another English doctor, John Rollo, introduced a crude empiric diet treatment which restricted carbohydrates. The scientific period began between 1830 and 1840. The one century since then has developed all the chemical methods of urine and blood analysis; nearly all the knowledge of metabolism of foods and of the glands of internal secretion; also, in 1889, the production of experimental diabetes in animals by removal of the pancreas, and the brilliant discovery in 1922 of a pancreatic extract, insulin, which positively controls diabetes, so that today diabetic patients can live not only symptom-free but often longer than the average of the general population. This is progress.

Furthermore, it is scientific progress. Studies of human cases by physicians have furnished suggestions of practically all the lines of development, but only in the form of vague hints. The position of unaided clinicians was practically expressed in the quip of Sir William

Gull concerning the tireless investigator Pavy: "What sin has Pavy committed, or his fathers before him, that he should be condemned to spend his life seeking for the cure of an incurable disease?" Inevitably, diabetes has been a hard and baffling problem, because it is a disorder of fundamental processes of nutrition and life. Therefore only the laborious path of scientific experimentation has led to real progress.

Diabetic patients might properly be interested in the names and achievements of at least the leaders in this conquest, almost as much as in athletic or moving picture personalities. Really important contributions have been made by so many persons that the briefest description of them would require a much longer discussion than this. Probably those who may be remembered as most outstanding are Claude Bernard, the Frenchman who founded the knowledge of carbohydrate metabolism and also internal secretion; Minkowski, the German who first produced diabetes in animals, by removal of the pancreas, and Banting, the Canadian who discovered insulin.

A life that was both fruitful and fortunate was that of Naunyn, comprising all the developments from the earliest scientific diet treatment in his youth to the advent of insulin in his old age. I would invite more attention, however, to the thousands of workers whose names remain unknown. They represent all countries, all languages and many fields of specialization. They received little pay in money, often none. They knew that their results would not win them fame. They merely supplied definite proof of minor facts, which in the aggregate build up the great body of science. Sometimes their supposed facts were disproved, or somebody else published the proof before them. Any one searching through the old journals which fill the walls or the cellars of libraries finds these hosts of buried papers, like inscriptions in a cemetery. Such men, unremunerated and totally unknown to the general public, embody the hope of humanity, because they illustrate devotion to truth and human welfare, rather than money or applause, as a motive in life.

Practically all the accurate knowledge of diabetes has been built on animal experiments. It is inconceivable and impossible that the discoveries could have been made in any other way. The metabolism of foods, the bodily chemistry for the disposal of protein, carbohydrate and fat, on which the diet treatment of diabetes is based, could not have been elucidated without the use of animals. The function of the pancreas and its islands of Langerhans in relation to diabetes could not have been established except through removal of the pancreas of animals, especially of dogs. This demonstration of an internal pancreatic secretion furnished the basis for the discovery of insulin. Insulin itself was discovered directly through experiments on animals and could not have been discovered in any other way. The insulin used for millions of treatments of patients has been standardized by animal tests; only by the killing of a number of rabbits could patients receive insulin of definite and constant strength. If it becomes feasible to standardize insulin by chemical tests, these also must be learned and verified by animal experimentation.

Diabetes is like other medical problems in this respect. Animal experiments have furnished the principal discoveries in all branches of medicine. Serums are made from living animals. In a multitude of ways, animals are indispensable for the prevention, diagnosis and treatment of disease and for the testing of foods, medicines and various medical and surgical materials. Therefore every well equipped hospital and every city, state and national health department constantly use not only the products of animal experimentation but also the living animals themselves.

CLAUDE BERNARD

OSCAR MINKOWSKI

FREDERICK G. BANTING

It is necessary to emphasize these facts, because scientific medicine is constantly attacked, hindered and endangered by organizations of so-called friends of animals. At the time of my first experimental work on diabetes at Harvard, some of these organizations held an exhibit in Boston, which included the distribution of pamphlets asserting that thousands of dogs had been sacrificed by operations on the pancreas without any benefit. It would be easy to prove that the antivivisectionists are as much the enemies of animals as they are of mankind; but at least the discovery of insulin creates an embarrassing dilemma for them. If they admit the tremendous benefits of insulin they admit the value of experiments on animals, in this case dogs. If they deny the value of insulin, against the testimony of hundreds of thousands of diabetic persons who actually use insulin, they weaken public faith in their veracity on all subjects.

A disgraceful condition of politics is revealed in the fact that certain cities, which are themselves conducting extensive animal experiments through their health departments, at the same time place their public pounds under the control of persons who prevent the medical use of stray animals. It is cruelty to kill these condemned animals uselessly and thus necessitate the purchase or breeding of other animals especially for medical use. Incidentally it is an inexcusable addition to the financial burden of research institutions. Diabetic patients in particular should work for the civilized policy which has been adopted in a few cities; namely, the throwing open of the public pounds to all qualified medical investigators.

Diabetes is a disorder of the fundamental processes of nutrition and life, and the diabetic themselves have served as the animals for a vast experiment performed by nature concerning these vital processes. The countless millions of persons who have died from infections have taught scarcely anything, beyond the means of protection against certain invisible germs. Other diseases, such as diabetes and cancer, open up understanding of the physical basis of life. They furnish not only a compelling incentive for research but also a means or a tool for discoveries. Were it not for diabetes, the present-day knowledge of bodily chemistry would not be available. Accordingly, the discovery of a cure for diabetes will by no means end research on diabetes. Diabetic patients should therefore appreciate the fact that the sufferings and deaths among their kind throughout past ages have contributed to general human progress to a degree which may be considered as actually worth the heavy cost. But they may be especially thankful that the burden of this study can now be shifted to a comparatively small number of animals, which under precise laboratory conditions can furnish more rapid and abundant information than all the millions of human victims. We may hope for a similar result with cancer.

As animals are not asked for consent to experiments, so also the consent of patients has not been asked for the vast experiments performed on them by nature. While diabetic persons of the past have deserved much sympathy, I am not disposed to flatter the pampered diabetic of today. The reason is not that they so commonly neglect the means already provided to help them but especially that they behave too much like unintelligent experimental animals. They have received their benefits through philanthropy, with very little participation on their own part. When they are asking for new treatments they are practically asking for more charity. The smaller part of this charity consists of money gifts from wealthy men. The other part consists of donations of services and discoveries by scientists, which if exploited commercially would amount to higher money value than all the income from endowments. There are many wealthy diabetic patients who might assist. Or, if 100,000 diabetic persons would each contribute $10 a year, they could revolutionize both the present disability and mortality from diabetes and the devolpment of new discoveries. Why should there be silence concerning the failure of the diabetic to cooperate for the benefit of themselves or humanity?

Research workers on their part continue to make progress in spite of handicaps. The recent introduction of protamine zinc insulin by Hagedorn is well known as a distinct advance in treatment. The latest demonstration of the diabetes-producing power of the hypophysis, or pituitary gland, by a series of investigators from Houssay in South America to Young in England, ranks in theoretical importance on a par with the discovery of pancreatic diabetes and will doubtless find some practical applications. Let scientific experimentation continue in spite of wars and depressions. It has placed us in position today to prevent nearly all diabetic deaths. It is working toward a higher ideal, which is perfectly feasible and not far distant: a world free from all disease.

---

*Scientific experimentation strides on toward its goal: "a world free from all disease." Each year the steps which it has taken are traced in the scientific assembly and scientific exhibit of the American Medical Association. This year, you will have an opportunity to hear about the highlights of medical progress in a program, "What Medicine Offers for Health," which will be broadcast, June 15, under the sponsorship of the American Medical Association and the National Broadcasting Company.* *For further information, see page 557.*

---

THE BATHROOM FLOOR STAYS ON THE SAME LEVEL DURING YOUR EXERCISE; BUT AS FOR THE DECK OF A BOAT—

# Rx one sailboat

***A prescription that sails right into that waistline, written by D. P. KENNETT in collaboration with RICHARD FECHHEIMER***

DID YOUR doctor advise you to reduce? So did mine! What's more, he warned me that if I valued my health I should take immediate steps to lose those excess pounds.

But was I worried? Not one bit! Life is much too short to waste any time worrying about my health. Neither dire predictions from my doctor nor unkind personal remarks from my wife could shake my unwillingness to reduce my pleasures simply in order to reduce my avoirdupois.

In fact, if my wise old doctor had not known how to handle ornery patients I would probably still be carrying my paunch around.

He knew that he could not make me diet—not so long as I could find buttery baked potatoes or juicy strawberry shortcake to push a fork into. He knew that he could not make me buy tricky exercising machines or do setting-up exercises in the bathroom. Those are too childish for a grown man, and besides it would mean getting up a half hour earlier in the morning! He knew that he couldn't even persuade me to play golf regularly, because I have a job I enjoy so much that I work at it all day, every day, including Saturdays and some Sundays.

But something had to be done about the paunch that was spreading out in front of me, making me puff whenever I climbed five steps. Something had to be done to inject more pep into me and push the stoop back out of my shoulders. Something had to be done before I damaged my eyes too much through staring at sales figures in an artificially lighted office. Something had to be done, and old Doc scurried around until he found the "cure." And the cure was simply the "*Jinx*"—a nice little sailing boat!

Now, please do not jump to the conclusion that I must be a millionaire to afford a boat. The *Jinx* cost me exactly $385. And in the same harbor were plenty of other boats that cost less!

A pretty expensive method of reducing? Well, pardon me if I appear to be trying to sell

WITH A MUFFLED SCREAM MY WIFE SLID DOWN TOWARD THE CABIN DOOR. IT WAS THE LOOK FROM HER THAT WOKE ME FROM MY MOMENT OF DAZED SURPRISE.

you something, but just let me tell you what that boat did for me. (Then you can tell me about *your* operation.)

My first exercise, after signing the check, was cleaning up the boat. It was moored quite securely in the harbor when I rowed out with a bucket, a scrub brush and some soap. (And, with all due credit to the ingenuity of the rowing machine manufacturers, there is no substitute for the exercise in temper control derived from rowing a light boat against a long series of waves that seem determined to push the boat in another direction.)

When I finally managed to board the *Jinx,* I filled the bucket with water and got down on my hands and knees. You may recognize that as Position No. 1 in the prescribed bathroom exercises for overweight oldsters. There's just one important difference: The floor of your bathroom stays on the same level during your exercise; but the deck of the boat—well, have you ever watched a man try to stay on an aquaplane or a bucking broncho? The deck of a small boat in a choppy sea is a little more gentle, but only a little! It somehow contrives to bob up and down at the most amazingly irregular intervals. Simply the effort required to keep from sliding off into the waves is enough to take off pounds and to build muscles in the abdomen, shoulders, legs and miscellaneous other sections of the anatomy.

To be perfectly honest, I found myself possessed that evening of a great variety of muscles that had previously remained hidden and inobtrusive. When I stood up after scrubbing the deck, all these muscles jumped into my consciousness to tell me of their little aches and pains. But I fooled them—I fell asleep as soon as I reached my bed.

The next evening I took the *Jinx* out for a trial sail and discovered a gadget called the tiller. Sailors may try to tell you that the purpose of the tiller is to keep the boat on its course. However, as one reducer to another, let me inform you confidentially that the chief work of the tiller is to make you brace your legs, to flex your stomach muscles, to loosen up your shoulders and to give you that gloriously relaxing feeling of being absolute master of your craft and yourself.

And, speaking of being master of yourself, sailing proved to me that a lot had happened since I was a lean, healthy youngster playing baseball, basketball and football and running cross-country, as the seasons rolled around.

As I said, I had *Jinx* out for a trial sail. The wind was coming from the southwest in intermittent puffs which occasionally were quite strong. The first strong puff caught me unawares. The boat heeled over—right on its edge. Long fingers of water reached over the side and up the deck, as if to pull the *Jinx* down. With a muffled scream my wife slid down toward the cabin door and held herself. It was her nasty look that woke me from my moment of dazed surprise. I pulled hard on the tiller; the rope holding the mainsail whizzed through my fingers. With an audible sigh of relief I watched the *Jinx* settle back to an even keel.

Then, as my blood stopped throbbing from excitement, I realized what had happened. I had had to use both arms; I had had to brace myself with my feet; I had had to lean back hard with all muscles tense and alive! (Note to the bathroom brigade: Remember Exercise No. 2? "Lie flat on floor—then, without moving legs, raise trunk slowly to sitting position—

lower slowly to floor. Repeat ten times." Well, those were the muscles I used, *plus!*)

In a few seconds I noticed a second gust of wind traveling over the water, making little cat's feet across the waves. This time I was ready for it. My coordination was a little better, muscles were working a little faster. The *Jinx* leaned over gently under the persuasion of the wind; then, as the breeze died away, she settled comfortably back to normal again. I was controlling the boat! My strength and my quickness were set against the force of the wind and the water—and my muscles were in control! Within half an hour, my wife was demanding her turn at the tiller, and I was left holding the cabin door. All evening we were fairly scooting along, alternately leaning way over, tensely braced, and then relaxing as the boat rolled back to normal. Perhaps a hundred times, this exercise was repeated on this evening. It was as thrilling the last time as the first. If this was a reducing medicine it certainly was a sugar-coated pill! When the breeze finally died away with the darkness, I sailed *Jinx* slowly up to the mooring, hoping against hope that the breeze would spring up again.

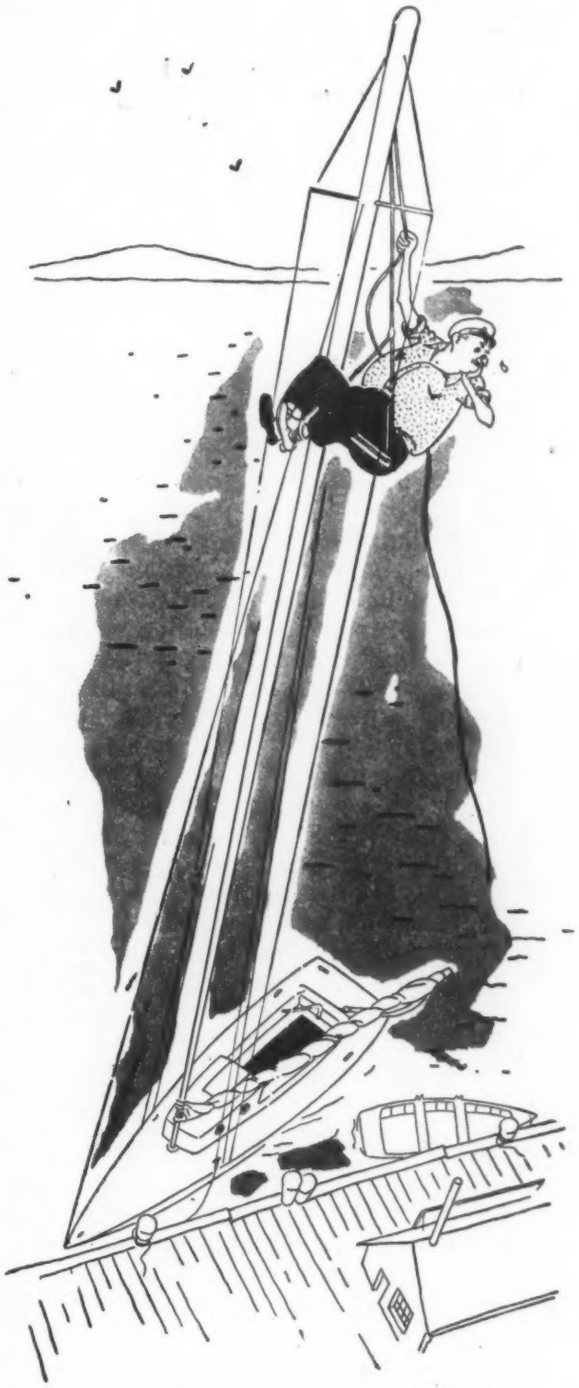
It was fun; it was exciting—with all the sport of battling against old Mother Nature's best tricks; but don't think it wasn't a truly good workout at the same time. Sailing gives you every bit of the benefit that you'd get from a stiff hour's exercise in a gymnasium—with just these important and beneficial differences: 1. Your boat exercise is thorough but not too vigorous; it's seldom that any one has to put up with sore or stiff muscles as a result of an evening's sail. 2. Your boat workout is by no means exhausting; it leaves you physically relaxed, mentally refreshed—you haven't just been exercising, you've been having fun! 3. Sailing keeps you out of the class of "older men who must exercise regularly." You don't have to be young to sail—sailing makes you young!

It was after eight weeks of sailing that I again stepped on old Doc's scales. I watched that long, accusing needle travel in short, swift, steadily declining arcs across the numerals on the face of the scale. Then it slowly stopped on the number of its choice. I felt a broad smile creeping over my face. I looked up, and Doc was beaming. "Cure's working," said he.

"Sure is!" And was I proud! For there on the scale in front of me was proof that eight pounds had slipped away! I had been eating the things I liked, sleeping the sleep of the dead every night and having a lot of fun besides. Yet eight pounds had disappeared from that dead weight out in front of me. So, back to the "cure" I went, looking for new ways of exercising aboard. And I had no trouble in finding them.

One of the most interesting things about a sailboat is its cute little habit of doing things by itself when you're not looking. Before the summer was over, I had gone up and down the mast half a dozen times to straighten out little difficulties that always seemed to be developing right at the top of that 32 foot pole, whenever I wasn't right there watching. *Jinx* created situations for me that none of the commercial manufacturers of exercise have even begun to think of.

First, a halliard (that's one of the lines used to haul up the sail—"good medicine" for arms and shoulders) became tangled. Some one was going to have to climb right up to the tip of the



I FELT LIKE A JUNE-BUG UP THERE AT THE END OF A VIBRATING BUGGY-WHIP.

mast and get it loose. I thought of the times I used to raid orchards in my younger days and wondered whether I could still muster up that monkey-like agility. Then I remembered the few times I had tried the grease pole at our local county fairs, and the situation began to look permanently hopeless.

"Ahoy," a fellow yachtsman hailed me from across the harbor, "use your bos'uns chair."

So that's what that board with a rope sling passed through its ends was supposed to be used for! I fastened it to a halliard, sat on the board and started to pull myself up the mast. It shortly developed that this particular exercise was a combination of tree and rope climbing plus a back-and-forth swing that threatened to throw me into the lake. When I had reached the top I felt like a June-bug at the end of a vibrating buggy-whip, but I somehow managed to untangle the line that had knotted itself so snugly around the wind-vane, and lowered myself to the deck.

Next time it was the wind-vane itself that necessitated a climb. Then the cross-trees needed bracing. All summer long, I managed easily to keep the dust off the mast.

Pumping in rough weather also does something for soft muscles. When the waves get to rolling high (and sailing offers some of its biggest thrills when the waves are the highest) most boats take on a little water. Pumping it out is achieved by holding a long, galvanized tube in one hand, bracing the legs against whatever is available and then with the other hand, operating a plunger that seems to weigh about 70 pounds. This exercise continues until the absence of water makes it impossible. If a sailor should never do any more than climb the mast and pump water out of the bilge, he'll be using so many muscles that he will never have a "paunch problem."

Like all good things the summer had to come to an end. Just before it did, I spent two glorious vacation weeks cruising up to Sturgeon Bay—out of the dirt and tension of the city—out into the clean blue of upper Lake Michigan. Whole, long days in the hot sun and fresh air! Brief moments of excitement in occasional squalls! And, during breezeless hours, luxurious loafing, swimming or reading! Quiet harbors and long nights of the most restful sleep that ever comes to man! What a life that was!

I came back feeling as fit as in my younger days when I kept in training for athletic competition. I was "brown as a berry," and the great gulps of fresh lake air that had been coursing through my lungs made me feel like a new person. My wind was better. The "office stoop" was out of my shoulders, and the tired feeling that office eyes get from days in artificial light, reading columns of figures, was gone. And more than that, those last two weeks had knocked *twelve pounds* off my sagging abdomen. (Beat that in two weeks, you bathroom benders!) My stomach muscles were hard and flat—sort of a blow to the clothes I had been wearing but certainly a relief to me. To phrase it as succinctly as the little boys in the playgrounds, "I felt swell!"

What's more, I had gotten that way by having fun, more fun than I can remember having since I was a boy when playing hooky was the world's biggest thrill!

Finally, fall came. I remember the last day that I made my usual Saturday afternoon trip down to the harbor. It was cool and frosty. Small gray clouds were scudding across the sky. Lake Michigan was heaving gently up and down in long, rolling swells. Winter was definitely nearing.

Then I noticed a disheartening sight. Several sailboats were moored to the sea-wall, with their spars down! On a dozen craft out in the harbor, men were taking down halliards and stowing sails in sailbags for the last time! This was tragic! This was the end of the cure, the end of the summer that had been full of little vacations.

What would happen now? Would Doc's good work have to be done all over next summer? Would I have to give up creamy mashed potatoes after all? Was I going to have to "pass" when my wife set one of those masterful apple pies of hers on the table?

No, thank goodness! Because the work (and the fun) on a sailboat never ends. As *Jinx* started up the Chicago River under power, making for her winter berth, I took my last look at the almost empty harbor and then started thinking of repairs. The deck canvas was torn in a couple of places. A small leak in the hull needed attention. The paint job no longer looked fresh. There were a dozen other blemishes that my fatherly pride could not bear to have marring my *Jinx*.

So the winter was an active one. When I began working I found even more little things to do than I had imagined—carpenter work here and there, repairs on the rigging, a going-over for the sails and then the final coats of paint.

It was all a new sort of activity for me. In previous years I had envied those men who whiled away winters in basement carpentry shops. This winter I laughed at them. They were making gadgets and doodads; I was repairing something that was going to bring me good sport and good health!

Now *Jinx* is in the boat yard, having shed her winter cover. She's gleaming and graceful and eager for the water. Summer winds have started to blow, and soon *Jinx* will be out in front of those winds, poking her bow through Lake Michigan's blue waters, helping me follow one of the best prescriptions that old Doc ever gave a patient!

*Like that legendary figure of Hamelin, this disease exacts its mortal fee from the nation's homes, says*
***PHYLLIS B. KOEHLER***

# RHEUMATIC HEART DISEASE

## —*Pied Piper of Youth*

WE, THE PARENTS, can do our share to combat the deadliest and most crippling disease of childhood, rheumatic heart disease. Are we going to stand by as did those parents of rat infested Hamelin who were

> Unable to move a step, or cry
> To the children merrily skipping by

and see our children lured away by a Pied Piper? Like the Piper, rheumatic heart disease exacts its toll in young lives. Every year it takes from us more children of school age than does any one other single ailment. With this drain on our most precious national resource we cannot balance our health budget; and the economic loss incurred by these untimely deaths is considerable, for the majority of those who die do so before they attain 30—just when they should become most productive.

Like the little boy in Browning's poem who was left behind because he was lame, there remain thousands with crippled hearts whose usefulness is curtailed and whose care not infrequently becomes a community responsibility. There are in the United States today close to 1 million persons whose hearts have been injured by rheumatic heart disease.

This scourge of childhood has aptly been described as the "forgotten health problem." Its undramatic nature, its stealthy onset and slow, steady progress have no appeal to public emotion or interest. A crippled limb is evident, and with proper treatment at least partial return of its function can be anticipated. But we cannot visualize the crippled heart. Nor do we know any way to repair the injury. This damage is irreparable, and because rheumatic heart disease is chronic there is the ever present fear that a recurrent attack will further impair the heart, until at last it may be utterly incapacitated.

SPECIAL GLASS WINDOWS PERMIT BENEFICIAL SUN TREATMENT DURING VOCATIONAL TRAINING LESSONS.

A hopeful note was, however, recently sounded when in recommending a national health program to the President the report went so far as to state that "appropriate treatment of children with rheumatic heart disease will restore nearly two-thirds to normal life." And though this ailment continues to destroy more children than any other disease the deaths from rheumatic heart disease have fallen off sharply.

We parents have a staunch ally in the medical profession. On May 2, physicians from two continents conferred over the air, so that the public might listen in, on the problems of heart disease in children. From London, Lord Thomas Jeeves Horder, physician-in-ordinary to the king of England, opened this international conference broadcast, the first on any health subject. The course and treatment of the disease were then discussed by Dr. Homer E. Swift of the Rockefeller Institute, New York City, Dr. T. Duckett Jones of Boston and Dr. William J. Kerr, president of the American Heart Association, from San Francisco. These men and many others are devoting themselves to intensive research through which they hope to isolate the cause of rheumatic heart disease and to determine an effective treatment.

Meanwhile we can do our share. True, until these medical investigations provide us with positive information we are fighting an unseen enemy. Yet if we learn to detect the infection in its early stages and give our children the best and continued care, we may lessen its damaging recurrences and even curb their violence.

But recognition demands knowledge. What must we know to recognize this disease which now dooms at least one out of every hundred school children? The doctors tell us that it is a chronic sickness with an extremely variable course. Nine out of every ten of its victims are also the victims of society—of improper housing and of inadequate feeding, for any infection will quickly take hold when the body resistance is lowered. It is likewise more prevalent in crowded urban communities than in the country, where sunshine and fresh air abound for all. Children between the years of 5 and 15 are most susceptible to its ravages, and the first five years of the disease are most important in forecasting its probable outcome.

The onset is difficult to recognize. Like a flash it may take hold of the child, but how it enters the body nobody knows. The portal of entry may have been the throat or nasal passages, diseased tonsils, decayed teeth or some other focus of infection. Its symptoms too are undramatic. Often they pass unnoticed until serious damage causes sudden alarm. A general run down condition, "spring fever" or old-fashioned "growing pains" may be the first signs of its invasion. Loss of appetite, nosebleeds, pains in the joints and muscles, and shortness of breath are also indications. A careful parent observing any such physical changes should immediately have his child examined and not stand by for further developments.

After locating the enemy, a method of attack must be decided on, always in consultation with the family physician. Most cities have heart clinics in which poor children may receive excellent medical attention. Frequent examination, no less than twice a year, is advisable so that any change in the heart may be detected early and as promptly treated. Prolonged care

"HEART SICK" CHILDREN, BOTH AMBULATORY AND BED PATIENTS, ENJOY COMPANIONABLE HOURS.

for the rheumatic heart cripple is imperative and should continue over the years, certainly until adolescence, when a resistance appears to be built up. But the crucial factor in regulating the patient's life is the presence of active infection. A flare-up of acute rheumatic fever may occur suddenly. Absolute rest in bed is then compulsory. On the other hand, during what may be long periods when the infection is quiescent and the heart therefore is running no risk of added injury, the child may lead a nearly normal life, restricted only by the capacity of his heart.

A "design for living" by which the child and the parent too can be guided during these years of watchful care is often helpful. Though each individual must of course be governed by his particular involvement, there are a number of valuable suggestions which in addition to the doctor's special instructions can well be kept in mind.

Rest is the best treatment. The amount prescribed will vary with the condition of the heart. This human pump is comprised of four muscular chambers. The valves that separate them open and close as the blood is propelled through. The heart's perfect performance depends on the proper functioning of these valves as well as on the muscular squeeze of the walls. Both muscle and valves are attacked by rheumatic heart disease; whereas the muscle, though scarred, may eventually recover part of its normal efficiency, the valve changes are permanent mechanical defects. Scar tissue formed around the aperture, narrows it and hinders the closing, thereby obstructing the onflow. To drive this blood through the narrowed valve, the chamber behind it must enlarge and the heart itself often becomes extended. This is nature's method of compensating for the decreased efficiency of the valve. Normally the heart beats 72 times a minute, resting after each beat to restore its strength. When, however, the heart has the extra effort of forcing blood through the constricted valve, then additional effortless rest is necessary to replenish its depleted power.

Decent living conditions are fundamental and if possible should include sunny, well ventilated rooms, a separate bed for every member of the family, individual clothing, individual utensils for eating and washing, and a well balanced diet. Good habits of hygiene should also be fostered, for a sound body can better ward off sickness.

Rheumatic fever reaches its peak during the winter and on as late as May. During these months it is especially important to avoid colds, sore throats and infectious diseases which may stir up a new rheumatic attack. A heart once damaged is more susceptible to new infection than a healthy heart. Teeth must be kept in repair and diseased tonsils removed as possible sources of infection.

Exercise too must depend on the extent to which the heart has been involved. It must be regulated by the doctor. While the presence of active infection is a determining factor, the slightest fatigue should be a warning to drop everything and rest.

A child with little heart injury should go to school and can keep abreast of his class. The sympathetic understanding of a teacher who is "in the know" will encourage the timid child

and restrain the boisterous one from overexertion. But he must not be permitted to capitalize on his sick heart. He should join with his fellow students and not feel himself singled out as different.

While the patient with incipient heart disease does well in the normal setting of a regular classroom, the child with an advanced case should be kept home. Bedside instruction and occupational therapy will happily occupy many leisure hours. Visiting teachers may attend those who are forced to absent themselves from school for long periods. In Washington and Boston the local heart associations have organized In-Bed clubs to entertain the children and have even provided volunteer and professional instruction.

The choice of work which is not too strenuous physically makes vocational guidance a real necessity. Its contribution in establishing the heart cripple as a useful and contented citizen can be of real value and especially useful in influencing the young people to stay at school longer and to train themselves in work where skill and not brawn counts most.

The emotional equilibrium of the handicapped requires the finest adjusting. Yet adroitly handled the child can be taught to direct his energies into more sedentary but productive and therefore far more satisfying channels. Though he may be forbidden athletics, there are numerous compensating activities; and if his friend plays football and he cannot, possibly he will turn out to be a better student or possess artistic talents which when developed will bring him great pleasure and the security produced by successful achievement.

How climate affects the course of rheumatic heart disease has been much debated. Dampness is unhealthy, and according to Dr. O. F. Hedley of the United States Public Health Service, rheumatic heart disease is most prevalent along the Atlantic seaboard and in the northern parts of the country. Heading southward, the incidence falls until in Puerto Rico it is unknown. Small groups of child heart patients have been transported from a northern hospital to the warm sunshine of Miami. Although removed from the harsh winter weather, it was found that for completely beneficial results the children ought to remain south from four to six years or possibly until puberty. This wholesale removal of entire families is obviously impractical for the majority of those underprivileged children who fall prey to the disease.

What actually is being done to rid our school children of the constant menace of this most deadly and crippling disease? Insufficient knowledge of the enemy makes it impossible to map out a campaign of attack. First it is necessary to reconnoiter to find out what causes rheumatic fever and to ascertain whether there is a familial liability to the disease; whether it is infectious; what factors precipitate flare-ups and finally how these recurrences can be curbed and the patient best treated.

In laboratories of medical schools and hospitals dotted across the country, white-coated doctors assisted by technicians are cautiously but incessantly striving to isolate the cause of this evasive enemy. Invaluable too are the studies of the life cycle or natural history of this chronic ailment. By putting together, as one would the pieces of a jigsaw puzzle, the data collected by heart clinics and convalescent institutions, we are gradually getting a picture of the disease and its habits. Detailed information and, most important, unbroken records of each patient are being charted. These clinical studies, even before the cause has been discovered, may reveal an effective treatment or regimen for the heart cripple.

A hasty glance at a few of the institutions now caring for these children demonstrates the various methods being tried. Probably the two best known, because they were pioneers and have independent research departments, are the House of the Good Samaritan, Boston, and Irvington House at Irvington-on-Hudson, New York. The Good Samaritan, a hospital for the care and study of rheumatic heart disease, admits only bed patients. Spending the greater part of the time in bed, they remain at the hospital for at least six weeks after all evidences of the infection have disappeared, but they are not accommodated there for the long convalescent period.

Irvington House refuses bed patients; though should the infection flare up while the child is there, he will be hospitalized. Similar to the tuberculosis sanatorium, Irvington House offers its children months, often years, of that revitalizing care which is so helpful in enabling them to accommodate themselves to a new mode of living. In the early stages of heart damage, they can be taught to live anew, readjusting themselves to their individual handicaps. Two smaller hospitals are the Children's Heart Hospital at Philadelphia and the La Rabida-Jackson Park Sanitarium of Chicago.

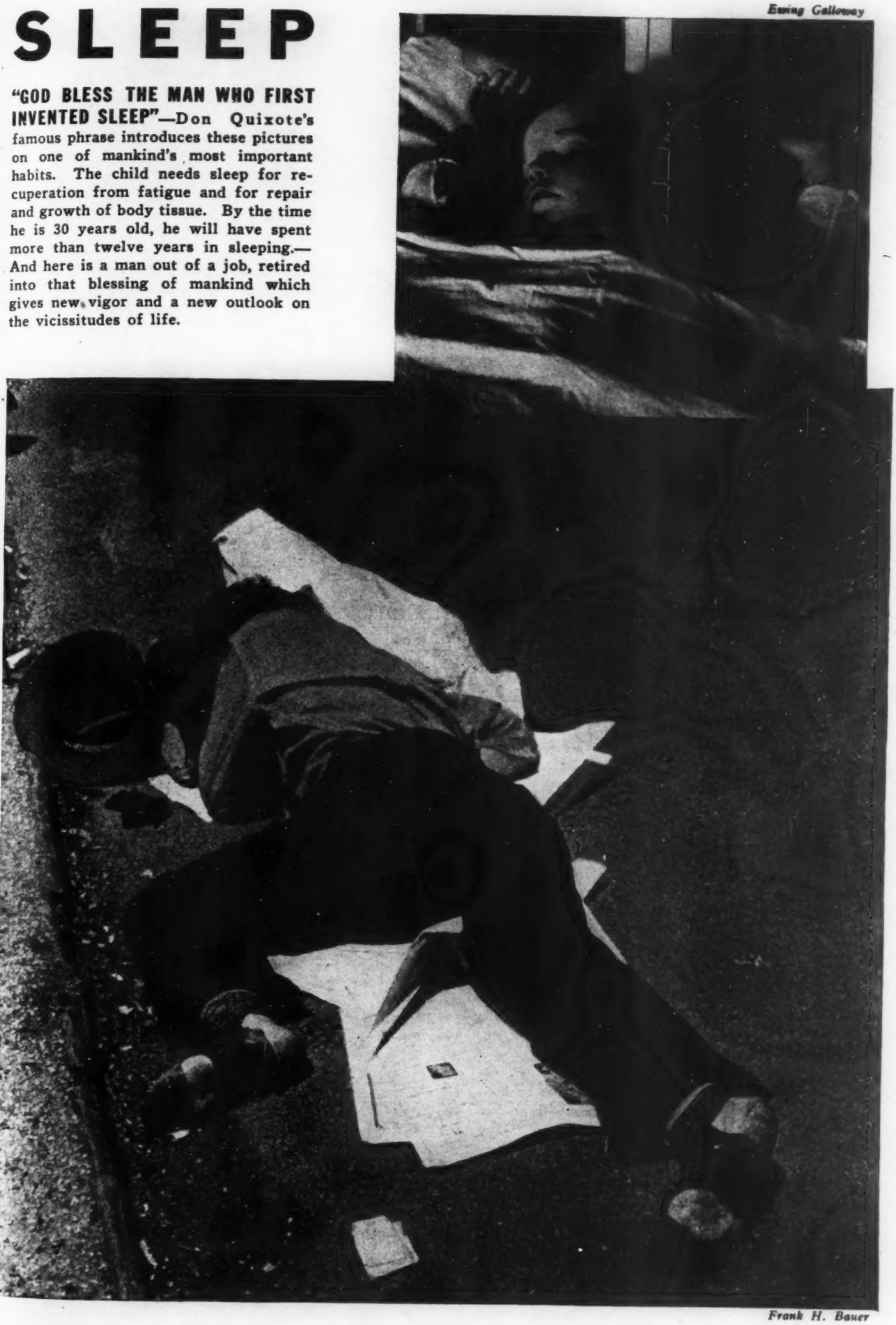
In Minneapolis there is a planned program for the prevention of heart disease in children of school age. This heart clinic, located at the Lymanhurst Health Center, is supported by the board of education, which has also provided space in a school for crippled children where patients with severe heart cases receive special care. Four years ago a ward for actively sick children was opened at the Center in association with the WPA and the board of public welfare. This all embracing effort, in which municipal departments are cooperating, has the additional advantage of being under one direction, the Lymanhurst Health Center.

The extension of these medical studies and of scientific research is *(Continued on page 574)*

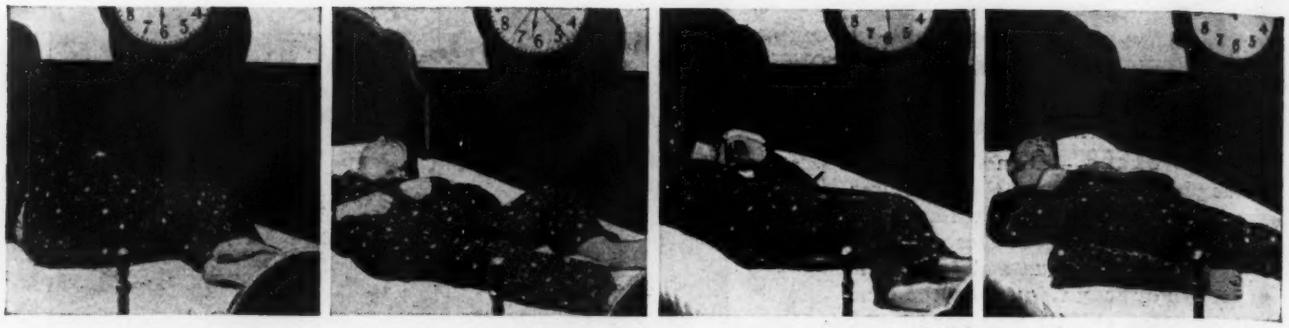
# SLEEP

**"GOD BLESS THE MAN WHO FIRST INVENTED SLEEP"**—Don Quixote's famous phrase introduces these pictures on one of mankind's most important habits. The child needs sleep for recuperation from fatigue and for repair and growth of body tissue. By the time he is 30 years old, he will have spent more than twelve years in sleeping.—And here is a man out of a job, retired into that blessing of mankind which gives new vigor and a new outlook on the vicissitudes of life.

Ewing Galloway

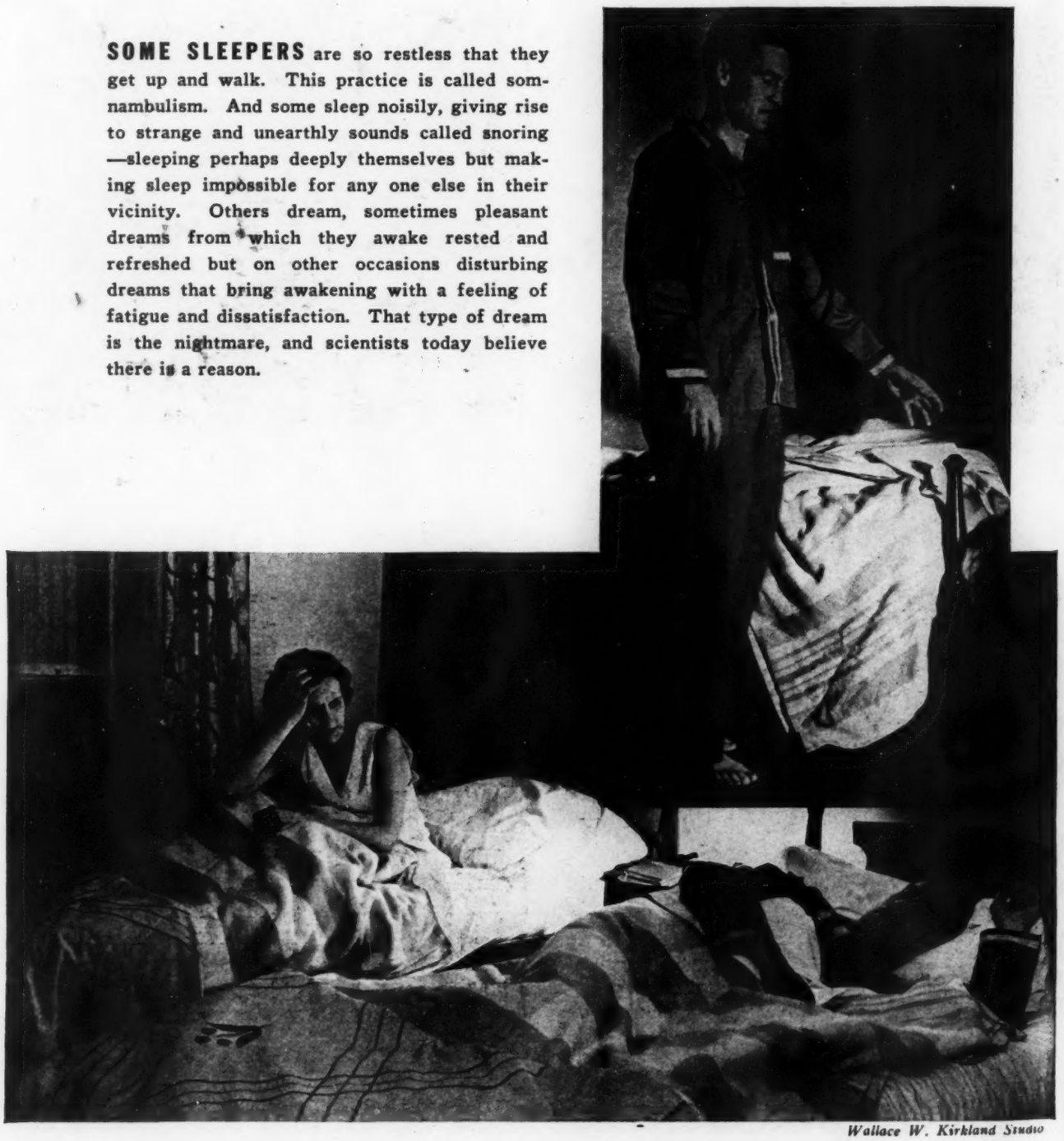


Frank H. Bauer



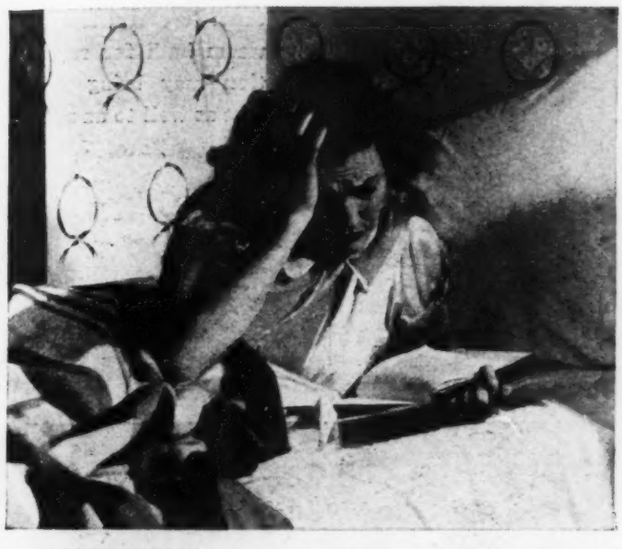
**WE DO NOT SLEEP** in one position all night. Some people turn over and move many times each night. Here are some of the positions assumed by one sleeper as eight hours passed —"sleeping like a log," but a rolling log.

**SOME SLEEPERS** are so restless that they get up and walk. This practice is called somnambulism. And some sleep noisily, giving rise to strange and unearthly sounds called snoring —sleeping perhaps deeply themselves but making sleep impossible for any one else in their vicinity. Others dream, sometimes pleasant dreams from which they awake rested and refreshed but on other occasions disturbing dreams that bring awakening with a feeling of fatigue and dissatisfaction. That type of dream is the nightmare, and scientists today believe there is a reason.



*Wallace W. Kirkland Studio*

**AND SO, ON INTO THE NIGHT,** blissfully unconscious of contortions. This sleeper changed his position thirty-six times in eight hours. From twenty to sixty times is within the normal range.



**OUR HABITS** during the day and before going to sleep determine to some extent the quality of our sleep. Reading in bed may be a preliminary to restful sleep, but an uncomfortable position with bad light, small print and a disturbing book may lead to a restless night.

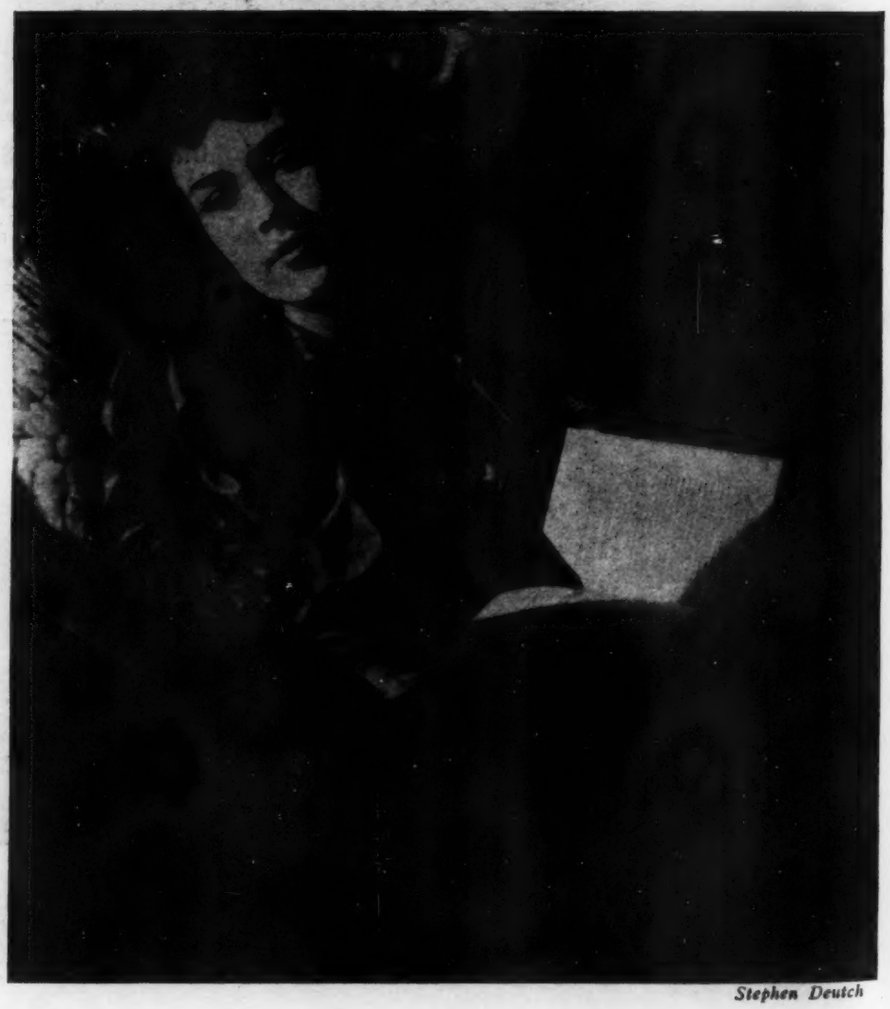
**ONE SLEEPS BEST** in the bed to which one is accustomed; but springs sag in time, mattresses bunch in spots, beds loosen, wabble and creak with age, and a backache in the morning sometimes indicates that it is time to change.

**HUMAN BEINGS** react to temperature. For hygienic sleeping, the temperature of the room should vary from 60 to 70. The air should be fresh and in motion but drafts should be avoided. And a cigaret in bed is an invitation to disaster.

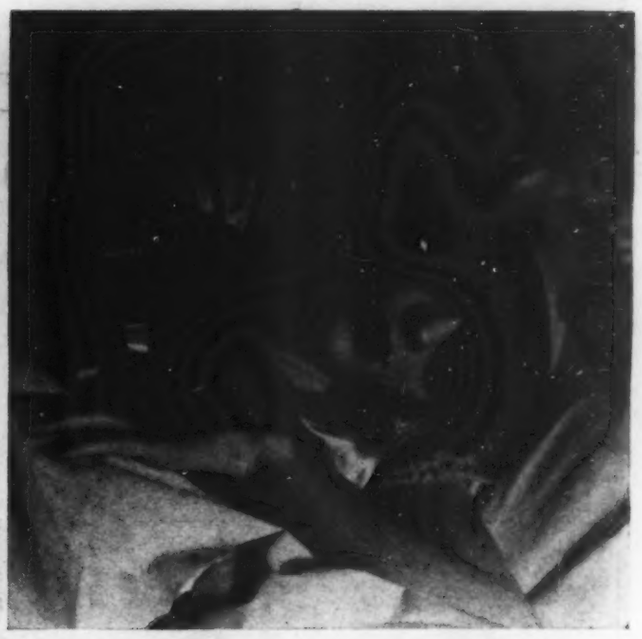
**SOMETIMES** sleep stays away when it is needed most. Drugs that block the centers of thought are the last resort, and they may be dangerous. No sleep-producing medicine should ever be taken without a doctor's advice.

**COLD** is stimulating and warmth is relaxing. For years, mothers have given babies warm baths at night in order to quiet them before putting them to sleep, and the warm bath for relaxation may bring sleep just as well to an adult.

**MENTAL HYGIENE** can produce relaxation before the wooing of sleep begins. A half hour of listening to quiet, restful music, a half hour of relaxation in an easy chair with a soothing book, a walk in the cool of the night along the shore of the lake or the river is a better handmaiden to sleep than sixty miles an hour along a crowded road, a combative game of bridge or thirty minutes with a swing orchestra.



*Stephen Deutch*



**IDEAL CONDITIONS** for sleep include little noise, which is a stimulus to the ear; no light which will stimulate or startle the eyes. If light is especially disturbing, it may be avoided by the use of opaque shades and hangings. Mirrors, pictures and the polished brass of the bed, loose boards, loose shutters and windows, creaky springs and shaky fixtures may cause unwarranted disturbance.

**THEN COMES SLEEP,**

"Sleep that knits up
the ravell'd sleave
of care,
The death of each
day's life, sore
labour's bath,
Balm of hurt minds,
great nature's
second course,
Chief nourisher in
life's feast."

*Stephen Deutch*

WITHIN HIS LIMITATIONS THE SUBNORMAL CHILD CAN ACHIEVE MUCH THAT IS USEFUL, AND HE SHOULD HAVE HIS RIGHTFUL CHANCE.

# LIFE'S "Perpetual Children"

***The mentally immature, the feebleminded—how and where may they find their most complete development and their happiest environment? The answers are given by***

***ETHEL LOUISE ROURKE***

SO YOUR CHILD, dearly beloved flesh of your flesh, whose coming you waited with confident hopes for a bright future, is mentally handicapped! Your cup is suddenly filled and running over, not with the joy that ordinarily comes to parents but with the anguish of shattered dreams and the dread of what the morrow has in store for him and you. You are now faced with the greatest problem of your family life. You must shoulder a large part of your child's unequal struggle for happiness. The quest of his well being is never ending. Your own peace of mind hangs in the balance.

The first needful thing is to accept without bitterness the fact of your child's handicap. It is no easy task. Your deeply wounded hopes need time and courage for adjustment. When you achieve a serenity of spirit the questions that arise in planning the little one's future can be dealt with more wisely than when emotional conflicts blind you to what is needed for his

best good. Whether the cause of the handicap lies in heredity, birth lesion or later disease, the problem is what to do now.

Adequate medical advice, it goes without saying, should always be sought. Incidental disease factors require special treatment. For instance, it is not uncommon for a mentally retarded child to suffer also from epileptic attacks. Even so, the decision of many questions is largely in the hands of parents. One of major importance is that of the child's home. Shall he live with his parents as a member of the family, or will he be happier eventually in a special environment with companions of his own kind? If your child is only slightly retarded he may adjust fairly well to home conditions and he may profitably attend the special classes of the public school. No general rule can be laid down for guidance. The requirements of each case must be individually studied.

Is it possible, you ask, to maintain a wholesome home life when one member of the family is unable to join the others on terms that even approach equality? Yes and no. The answer lies partly in the nature and degree of the handicap, partly in the poise of the family group. Let me put these counter-questions: Is it possible for you parents not to show too much concern over the peculiarities of appearance or behavior which a marked mental disability often presents? Will your other children be under too great tension in attempting to adjust to the extraordinary needs of a subnormal brother or sister? Will you be able to give these others the care they also need or the normal life essential to their development? Remember, a feebleminded child is so excessively in need of constant care that he inevitably absorbs much of the time of the mother. It often happens in such cases that the other children, and the husband and father as well, are necessarily neglected by the mother who devotes herself to the child in special need of her.

Yet wise parents have worked the problem out in both ways. Some instances may be helpful in illustrating the difficulties involved. Lena was the little daughter of Mr. and Mrs. S., a cultured, well-to-do couple who had accepted simply and serenely the fact that their little girl was feebleminded. They had other children, but I do not think they ever considered the possibility of sending Lena away from home to live. They were fortunate in securing as her companion and teacher a young woman who genuinely loved children and who was trained in the most progressive methods of the day. Lena's brothers and sisters seemed to take over their parents' acceptance of her as a real member of the family who needed somewhat more love and consideration than they themsleves. When the family went away for a trip, Lena and her teacher went with them. She mingled with friends who came to the home. Yet Lena was not spoiled. She was expected to make adjustments to those about her to the best of her ability. The experiment of training her at home was successful, partly because Lena herself was sufficiently adaptable and partly because her family were fine, big people, prepared to give her the special love she needed.

Mr. and Mrs. T. had a more difficult problem. Their little daughter Elsie was slightly retarded, and at an early age epileptic attacks developed. People with this malady suffer from profound emotional conflicts. Elsie would have won first prize for temperament in any group of a hundred of her kind. To say that she was self willed is putting it mildly. A favorite expression of hers, uttered with explosive finality will illustrate: "I want what I want when I want it!" And she moved heaven and earth to get it, using every means her mind could devise, from the infantile tantrum to a steady, hammering away process calculated to wear out the patience of saints and sinners alike. Her stormy personality tended to disrupt the family life. If she couldn't occupy first—nay, sole—place in her parents' attention, everything must stop. She demanded freedom to go where she pleased, do as she liked. Obviously, her health and safety could not permit such liberty. Besides, her father and mother conducted a business that required much of their time and attention. This fact, together with Elsie's special needs and the problem of other children in the home, made it advisable to seek another environment for her.

ELSIE WOULD HAVE WON FIRST PRIZE FOR TEMPERAMENT IN ANY GROUP OF HER KIND.

Various plans were tried out. She lived in private homes with nurse companions. She was sent to a special school. Finally, she came to live in a small private sanatorium which provided excellent physical care together with school advantages. She has been avowedly happier there than at any other time in her life, because she is with those of similar disabilities and under the supervision of kindly people who understand her particular requirements.

Speaking from long experience with retarded children and those suffering from such severe nervous disorders as epilepsy, I believe they are generally happier in a pleasant group environment like the one just mentioned. I have heard such confidences as this: "I used to think I was the only one in the whole world that had attacks!" In this special group they have companionship, and they do not feel painfully inferior to brothers and sisters blessed with normal capacities. They are getting a "break," often for the first time in their lives. Many of these young people openly say they are happier than they ever were at home. Of course they have moods when they are homesick or when they want to be "out in the world." Their complaints at such times are often distressing to their parents, who make the natural mistake of identifying themselves in every detail with their handicapped child. They imagine that he feels as they themselves would under like circumstances. They forget that his experience, due to his disability, has been very different from theirs. He cannot in any real sense miss what he has never enjoyed. It is different when an adult suffers a so-called nervous breakdown. In the convalescent state he will gradually wish to regain his old place in life, as he should; but the feebleminded or epileptic child usually could not function in the ordinary environment. His idea of life "in the world" is a fantastic one, built on wishful thinking.

Elsie, for instance, often complained that she wanted to live "like other people." Yet on her occasional trips to town she would fly into a rage if jostled on the streets. Noise and confusion were difficult for her. In a social group she frequently got angry if people didn't center all their attention on her. Obviously, her idea of filling a normal place in society was absurd.

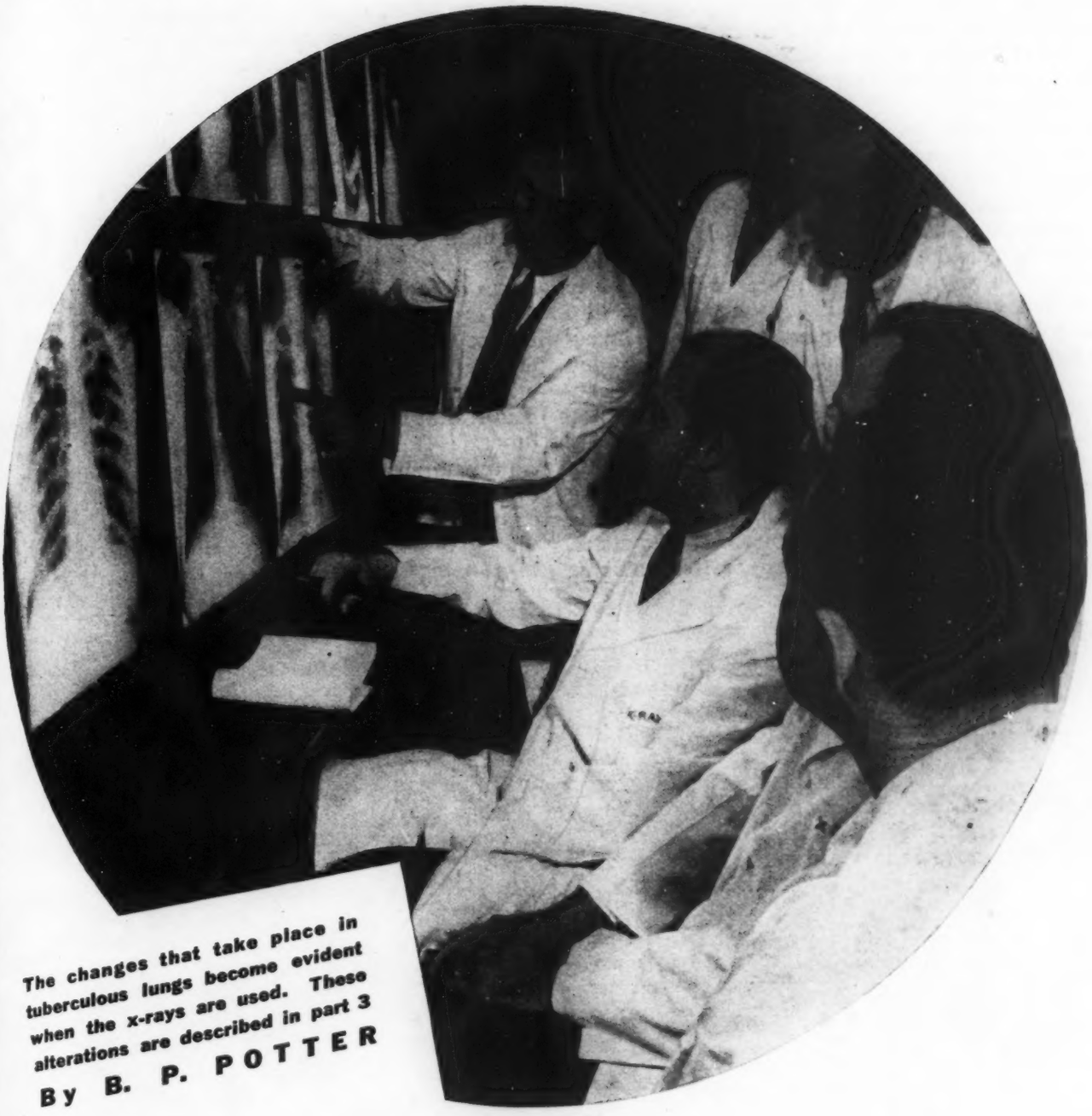
Such homesick moods can usually be corrected by little attentions from friends and family. The child living away from home should feel that he is a loved member of the home circle who is receiving special advantages through his stay at the special school or institution. Visits to his home or from members of the family, at sensible intervals, help to maintain his emotional morale.

Parents often fear their children will not be well treated in an institution. This bogy is an inheritance from past centuries when such a fear was well founded. Vast strides have been taken in the understanding and treatment of mental disorders. Kindness is, however, a trait of the individual, not limited to any particular environment. People are kind or unkind everywhere—in the home, in the school and in the large institution. Naturally, it is true there is less opportunity for individual attention where large groups are cared for. Often the personnel of state hospitals could give lessons in humanity and wisdom to many mothers. I once heard a kindly old official in charge of the ferry-boat service to a state institution for defective children refer to the nurses as "those women with heaven in their hearts." I do not doubt they deserved his praise. Those who go into institutional work do so partly because of a parental hunger that finds peculiar gratification in the care of "perpetual children," as a famous physician once called the mentally immature. You should, of course, investigate thoroughly any environment where you expect your child to live.

Where will the child with special needs receive the best advantages for development? Training children with any serious disability requires knowledge of the delicate psychologic problems involved. The ideal for undergifted children has long been to help them become as nearly as possible like their normal brothers. If this means to develop their capacities to the utmost, to help them toward the greatest degree of independence possible, well and good. But competition with the normal brother is not the best way to attain the goal. The subnormal child is slower in his reactions; he can go only so far. Within his limitations, he can achieve much that is useful, and he should be given his rightful chance.

Parents who undertake the job of training such a child at home often do not understand what those limitations are. Moreover, parental pride makes for blind spots. It is a tragedy when the goal of performance set before the undergifted child is impossibly high. The result is bound to be disappointment and disillusionment for the parents, and heartrending discouragement and an overwhelming sense of inferiority for the little one who cannot make good. It is not strange under such circumstances that unfortunate behavior reactions or disease symptoms are often the sad consequences.

Again, the average person is likely to underrate the abilities of the subnormal child. He may be born "short" in definitely intellectual qualities but "long" in others. Many feebleminded individuals produce beautiful specimens of handwork. They can be trained to become capable manual workers in many fields. Those in the upper level, approaching normality, may even become self supporting, or nearly so. There is an erroneous idea in many minds that the retarded child will *(Continued on page 568)*



The changes that take place in tuberculous lungs become evident when the x-rays are used. These alterations are described in part 3

By B. P. POTTER

# TUBERCULOSIS UP TO DATE: III

THE EARLIEST EVIDENCE of damage produced by tubercle bacilli lodged in the lung is the formation of masses of tubercles in the smallest divisions of one of the branches of the windpipe, usually the one plying the upper portion of the lungs. These masses of tubercles are seen in the x-ray picture as small white spots ranging from the size of a pinhead to that of rice granules or larger on the black background cast by the normal lung. These may then crowd together and form one or many large white spots. In a similar manner, masses of tubercles may form in terminal divisions of other branches of the bronchus leading either to the upper or to the lower portions of the lung. It is to these white spots—large and small—seen by x-ray examination that the term "infiltration" is given.

If the disease does not stop short at this stage, one soon finds the center of one of these large spots becoming somewhat less white and more or less separated from the outer portion by an indefinite ragged ring. This less white portion within the ring represents the softened cheesy looking tubercles which have become broken down as a result of the death of the

cells of which they are formed. This death is caused in part by lack of nutrition due to the want of blood supply to the center of the white spots and in part by certain agents which act directly on the cells to destroy them. All this represents the beginning of the dreaded cavity —a word which is never "softly or sweetly" received by the ear of the afflicted.

When sufficient softening has taken place and free communication with a bronchus has been established, the cheesy material is emptied, leaving a cavity with a more or less clearly defined wall. When viewed on an x-ray film this final picture is represented by a black, smoothly outlined, rounded shadow surrounded by a white border which results from the surrounding infiltration. It is at this stage that the sputum becomes positive.

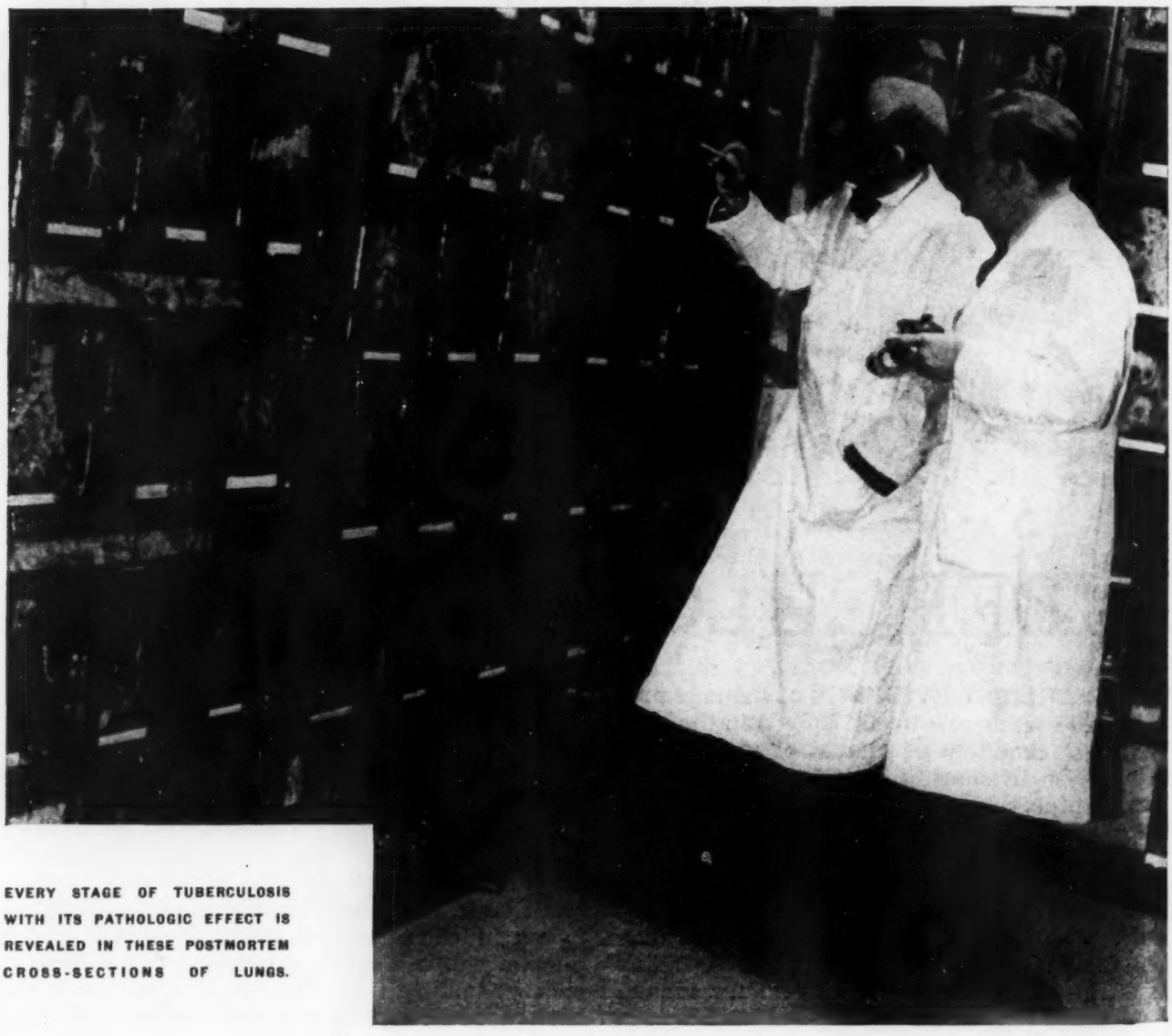
Even at this stage of the disease, recession may take place with complete healing of the cavity by collapse of its walls, permitting the surrounding infiltration to resorb. If, however, either because of lack of proper treatment or of any treatment at all or because of poor resistance the process continues to progress, then there may develop a series of changes which in many cases look ominous.

There is no particular order in which the changes complicating the cavity take place. In a general way, any one or a combination of the following may ensue:

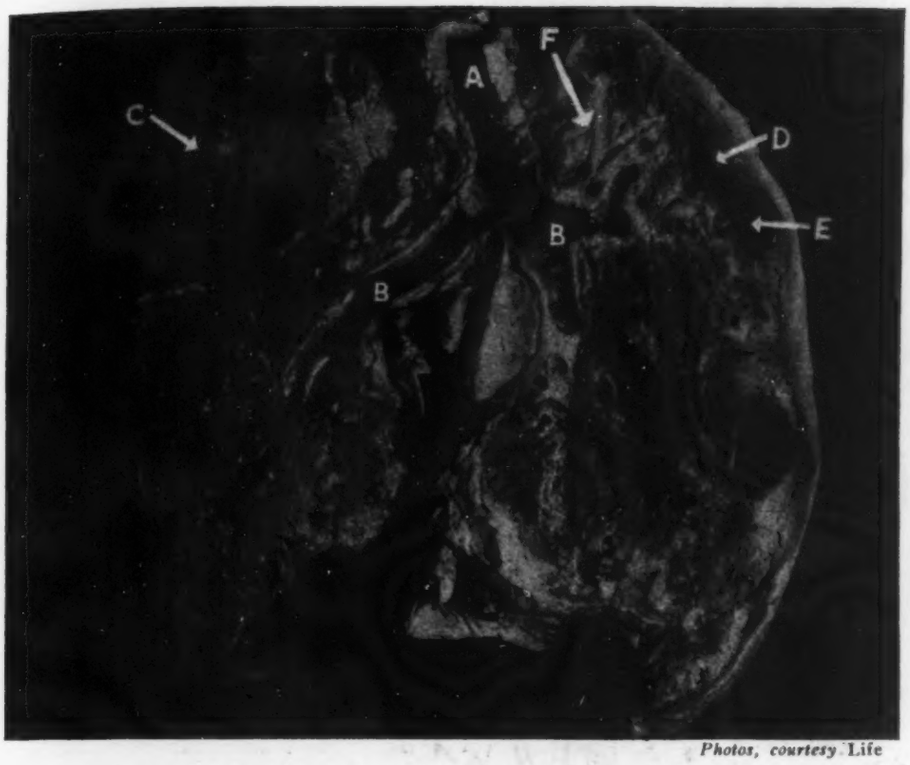
1. Cheesy particles in which numerous tubercle bacilli are found may spread to other parts of the same or the opposite lung, and these begin a new formation of tubercles.

2. By eating into a blood vessel usually lying to one side of the cavity, tubercle bacilli may enter the blood and become distributed to other organs. At times the number of tubercle bacilli that thus enter the blood is so great that tubercles form throughout the system. This complication is known as generalized miliary tuberculosis and frequently results in the death of the person.

3. If a larger blood vessel is eaten into, a hemorrhage may take place, which at times is



EVERY STAGE OF TUBERCULOSIS WITH ITS PATHOLOGIC EFFECT IS REVEALED IN THESE POSTMORTEM CROSS-SECTIONS OF LUNGS.




THIS SPECIMEN OF A HUMAN LUNG SHOWS ADVANCED TUBERCULOSIS ON THE RIGHT. A IS THE TRACHEA; B, BRONCHUS; C, NORMAL LUNG TISSUE; D, ADHESION, HOLDING E OPEN; E, CAVITY, AND F IS SCAR TISSUE.

*Photos, courtesy* Life

fatal. If immediate death does not result, the blood containing tubercle bacilli may spread throughout both lungs and result in bronchopneumonia, which often terminates life.

4. Finally, one may find that the masses of tubercles by coalescence have replaced the normal lung tissue, resulting in a consolidated lung or a portion of it. The original cavity may grow larger in size, and other cavities may form in different parts of the lung. Soon a stage is reached where the normal lung tissue that remains is insufficient to supply the proper quantity of oxygen to the body. This, plus the unusual burden put on the heart, may finally result in death.

In the main, these are the changes usually encountered when tuberculous disease of the lungs progresses. To these must be added the damage less frequently encountered, such as rupture of the lung and infiltration of the pleura with tubercles extending from the lung, with subsequent formation of tuberculous pus in the chest cavity due to breaking down of one of these tubercles. Besides these local changes, there is always the fear that tubercles may form in other organs such as the intestines, the voice box, the kidneys, the brain, the spine and so forth. Those formed in the intestines are usually due to tubercle bacilli in the sputum swallowed, while the arrest of the tubercle bacilli in the voice box is brought about as the sputum is coughed up. The involvement of the other organs mentioned is usually due to tubercle bacilli carried by the blood.

How then is one to avoid the progression of the disease to its destructive and debilitating stage? In other words, how can one become aware of its earliest manifestations, in which stage it is most easily controlled? At the outset it should be realized that most frequently one passes this stage entirely unaware of its presence. This is due to the fact that subjective signs are usually so vague that one does not stop to reflect on them. Even when such symptoms as a feeling of fatigue or a slight loss of weight are noted, one is too apt to account for these by overexertion. Thus most individuals pass from the first to the more serious and at times destructive second stage of the disease. During this stage some subjective and objective signs as a rule appear, but negligence on the part of either the afflicted individual or the physician results in temporizing, which permits the onset of the far advanced stage.

The symptoms and signs of tuberculous disease in the lungs are well known. I should like, however, to emphasize the manifestations of this disease in its various stages by citing concrete examples.

Jennie, a young girl of 18, felt perfectly well until one month before seeing a doctor, when she noted a tendency to clear her throat. During work she was frequently disturbed by a tickling sensation of the throat which would be relieved by an attempt to clear it. At first she was reluctant to admit that this was abnormal. However, she was soon reminded of the death of her brother, who had tuberculosis and whose illness started in a similar manner. An x-ray examination disclosed a small spot in the upper portion of her right lung. This incident demonstrates a frequent *(Continued on page 574)*

EVERYBODY KNOWS that Conan Doyle was a doctor and that the prototype of Sherlock Holmes was a physician, Dr. Joseph Bell, in Edinburgh. When Dr. Osler was teaching medicine in this country he made his students read Voltaire's "Zadig" in order to learn the methods by which this keen observer deduced facts from appearances. Actually, the doctor must be a good detective, with all his senses acutely tuned, keen on observation and with the ability to run down clues. A proper diagnosis is an essential to successful treatment. No great difficulty is involved in diagnosing the trouble with most patients who come to a doctor's office. Many diagnoses are easily made, and in these days of widespread superficial knowledge of medicine even patient-made diagnoses are common—and very dangerous. The trouble with the patient-made diagnosis is that it lacks a basis of fact and knowledge. The stomachache following food may mean much more than a simple ordinary "green apple stomachache" or so-called food poisoning. It might indicate acute appendicitis, a gallbladder attack or one of many other mild or serious diseases.

The patient is not a medical detective; the doctor must be. The stomachache problem may be very simple. It may mean appendicitis and an immediate rush to the hospital for operation; but even such a comparatively simple diagnosis requires knowledge and the ability to follow the

clues in a logical sequence. If the case is typical the clues will be so positive as to form an inevitable conclusion.

Unfortunately the textbook pictures of disease are not always seen in practice. The acute abdominal complaints which in the majority of instances may be caused by simple appendicitis may also present elements not altogether consistent with this diagnosis. If atypical symptoms or physical observations are encountered the detecting ability and correlating judgment of the physician may be severely taxed. The diagnosis must be the result of exact observation and logical deduction and must be as consistent with the evidence as is the end of a good detective story. A regular detective will not pin murder on an obviously innocent man; a good diagnostician will not make a diagnosis which is obviously inconsistent with the evidence.

People in the stress of exciting circumstances do not always behave according to simple laws; neither does the human body. An appendix may become inflamed and burst without giving the classic group of symptoms such as nausea, vomiting, pain in the midabdomen gradually going to the right lower quadrant, fever and a change in the white blood cells. A ruptured stomach ulcer usually results in a typical set of symptoms and signs, which when added together make an inevitable diagnosis. Unfortunately, however, not all ulcers of the stomach rupture according to the classic formula, in which instance the detectives have to consider many other possible conditions. Under an area in the upper right portion of the abdomen which can be covered by the palm of a hand lie a multitude of organs, any one of which might be the criminal in the case. The possible offender may be discovered in the skin, the muscles, the gallbladder, the stomach, the liver, small and large intestine, kidney and adrenal gland, even the muscles of the back, the spine or the nerves; or the cause of trouble may be a remote organ, in which case the diagnostic difficulties are increased.

Yet in principle the job is simple enough. Like all good detectives, the searcher must first be objective in establishing clues. The first clues are noted in the history, painstakingly obtained from patient or family, with exquisite care as to the details.

Obviously it is not sufficient for the doctor to know that a patient had stomachache and nausea. The doctor must uncover the nature of the stomachache, when it occurred, what the patient was doing at the time, its relation to meals and everything else about it. Did the pain stay in one spot? Did it move from right to left or from left to right? Did it precede or follow the nausea? Did the patient ever before have a similar pain? Many difficulties in diagnosis are encountered because the patient or physician is not sufficiently careful in the elucidation of symptoms.

The next step is to obtain data from examination. Here as in all good detective work the special senses are the best guides. Clues must be searched for in all parts of the premises. The smell of gas in the attic may come from a faulty furnace. A thorough examination of the patient may elicit information which mere local inspection will fail to find. This statement is made because patients sometimes seriously object to a doctor examining the legs or the eye when the complaint is abdominal pain. The patient may not know, but the doctor does, that there is at least one disease which gives intense abdominal distress and which is easily diagnosed by examination of the pupillary reflex. Patients may not know, but doctors do, that certain types of serious heart disease give symptoms in the abdomen. In other words, a general physical examination is an absolute essential of diagnostic work. The good detective goes all through the house, looking for clues.

The senses may require assistance from the machine. Just as the detective may employ the lie detector on a suspicious character, the doctor may ask for a laboratory examination of the blood or urine, may even need the x-rays. In the acute abdominal conditions the routine employment of an analysis of the urine and a blood count has become such a necessary

THE CLUE TO AT LEAST ONE DISEASE WHICH GIVES INTENSE ABDOMINAL DISTRESS IS FOUND IN THE EYES.

adjunct of practice that patients often request these tests. Patients have heard of the friend who was saved from an unnecessary operation because the urinalysis revealed that the suspected appendicitis was kidney trouble. Even wise doctors may encounter difficulty in penetrating the disguise of oncoming diabetic coma masking as an acute abdominal condition until the laboratory tests reveal the true culprit. A simple blood count may be a most valuable clue. In certain instances it will yield definite corroborative, even final, proof; in other cases, information from the blood count becomes mere circumstantial evidence.

Readers of detective fiction note that the detective often revisits the scene of the crime to review the evidence, to check on information previously obtained. The medical detective must do this frequently; for in the course of illness the evidence may be constantly changing. Symptoms which occurred at 7 a. m. may have been replaced at 10 a. m. by a new set. The condition of resistance noted in the abdominal wall varies with the progress of the underlying disease. Reexamination after a few hours may furnish invaluable clues. Changes in the blood count in a case of suspected appendicitis may become the deciding factors in determination as to the necessity of immediate operation. Wise watchful waiting frequently furnishes the opportunity to follow clues to a logical conclusion.

Watchful waiting is not always an easy procedure in the somewhat spectacular acute conditions in which the final decision may mean immediate action to save life. In more chronic ailments, the diagnostic difficulties may be greater, but we have more time to assemble data. Let Scotland Yard now center its attention on the stomach. The early symptoms of many stomach diseases are similar: "indigestion" due to a nervous upset, to gastritis, to ulcer or to cancer may be indefinite and entirely nonspecific. The detective knows, however, that he has to find the culprit. He has to discover what produces these vague indefinite symptoms. It has been said that the diagnosis of cancer of the stomach is rarely made in the early stages because cancer of the stomach does not leave any definite or distinct clue until it has advanced to the homicidal stage. Patients frequently consult doctors for what they consider minor complaints, and sometimes they resent the fact that "the doctor makes too much of a fuss." He must do so. If he cannot make a diagnosis by ordinary means he must employ everything available in modern medicine—x-rays and all sorts of tests may be necessary if proper diagnosis and efficient treatment are to be had.

Here again the senses and the brain of the detective are more important than the modern mechanical aids to detective work. The physician who can see, feel, smell, hear and even taste is a better detective than one whose senses are blunted. The physician who is at least partially familiar with the idea that in almost every disease the symptoms are the result of a total bodily and psychic reaction can detect a diagnosis better than the one who relies too much on purely objective data accumulated by tests. The detective employs the crime laboratory to obtain corroborative evidence, but he is unwilling to let the laboratory form his final opinion. So the doctor with all the evidence produced by his senses and his machines still has to fit the accumulated data into a proper pattern. The deciding factor in many diagnoses is the physician's judgment. To err is human; judgment is at times fallacious.

It is not sufficient merely to make a diagnosis. It is not sufficient to discover that the patient who has headache also has ingrown toe nails unless it is likewise evident that the ingrown toe nails are the cause of the headache. Diagnosis is a mere name unless it gives a complete and satisfactory explanation of the patient's complaints. Every complaint must be accounted for just as every clue in the detective story must have a logical explanation.

The amazing part about it all is not that doctors miss diagnoses sometimes but that they miss them so seldom. If one stops to realize the intricacies of the normal mechanism of the human body and if one considers how much more complicated this mechanism becomes when any single phase of its activities is disturbed, one cannot expect doctors to be supermen. One need only remember that a slight disturbance in one organ may produce marked abnormalities in remote parts of the body. The thyroid gland may not enlarge sufficiently to call the patient's attention to it, and yet disease of the thyroid may produce a profound shock to the nervous system, tremendous increase in pulse, marked loss of weight and a general smash of the whole organism.

An old, well known physician was once asked how to choose a doctor. His answer was: "Well, there are three kinds of doctors. First, there is the doctor who makes a mistake and doesn't know when he does. He's a fool. Second, there's a doctor who makes a mistake, finds it out but won't admit it. He's a liar. And third, there's the doctor who makes a mistake, finds it out and admits it. And that's my doctor!"

---

*You too can help your doctor to clear up mysteries! How you can become a Watson to his Sherlock will be revealed in a broadcast under the joint auspices of the American Medical Association and the National Broadcasting Company. For further clues, tune in on Wednesday, May 25.* *(For stations, see page 554.)*

---

# YOU—and YOUR CHILD'S CAMP: I

***When you entrust your child to a summer camp you will want to be sure it is a safe place for him. What parents have a right to demand of the camp is told***

**By FRANK HOWARD RICHARDSON**

WHEREVER a group of people are gathered together to spend several days or weeks in work or play, a health problem is created that calls for careful planning and for conscientious execution of the plans made. When the majority of these are young people or children, when the leaders are for the most part young adults and when the mature men and women are so few that they could be numbered on the fingers of one hand, the problem becomes acute.

Now this is exactly the situation in the large percentage of our organized summer camps. Few of the leaders, practically none of the campers, have ever had it brought vividly to their attention that man, while a gregarious animal, is a dangerous neighbor unless effective means are taken to render him safe company. It used to be not unusual for army camps to become veritable graveyards in the early days of mobilization, when sanitation had been overlooked through the ignorance of inexperienced officers; and a summer camp can easily become a menace to health and to life itself, if the utmost care is not taken to make it the safe place parents have a right to expect it to be.

Fortunately, most of the better private camps have been planned in consultation with sanitary experts and are administered under the supervision of those experienced in the highly technical business of living together in the open. Parents should not take these matters for granted, however, when they plan to trust their children to even the best of camps for the summer season. It is in order to help them to make sure that the camp they have chosen is a safe place for the children entrusted to it that this article is being written.

The lie of the camp with respect to sun, shade, prevailing winds, protection and exposure, while vastly important in the choosing of a campsite, need not concern the parent. While these features have much to do with the comfort of the camper they are difficult for the layman to appraise and need not be considered as directly affecting the health of the campers. If the ground on which the buildings are located is high, sloping and well drained, and the sun has reasonable access to their interiors for part of the day, that is about as much as need be considered here.

One feature that should be looked into, however, in any camp is the nature of the water supply. Many camps are fortunate in securing an unlimited supply of water from some city or village reservoir that is subject to frequent expert inspection. Some camps own their own water shed and so are in a position to police it effectively. Probably every camp should have a chlorinating system that may be placed in operation at a moment's notice. The local health officer and the camp physician should see to it that this is done at any time that conditions suggest it. Chlorination should be continued as long as there is any question whatever concerning the safety of the water supply.

Quite as important is the disposal of sewage. As camps are usually located where trunk line sewers are not available, septic tanks are generally relied on to dispose of all waste. These are satisfactory and effective; only through their use can protection from contamination be assured for the lake on which a camp is located. They must be adequate in area for much more than the estimated population; and their drainage, while theoretically sterile, should be carefully planned for. Showers are far more sanitary than tubs and, of course, abundance of hot water should be ensured. Toilet facilities should be ample; and an efficient patrolling and policing of toilet and bath houses will prove indispensable.

It is important to know the source of the milk supply of any camp. While it sounds fine to say that a camp has its own dairy herd, this may be a source of danger rather than of safety unless the utmost care is exercised over every step of the milk production. It is far safer as a rule to rely on the best local dairy available or even to have the milk brought from a distant dairy, provided it is properly iced. It should never be delivered in bulk; that is, in cans. Nothing larger than quart bottles should be permitted, even for so-called cooking milk. Many camps are finding it well within their means to have all milk for drinking supplied in

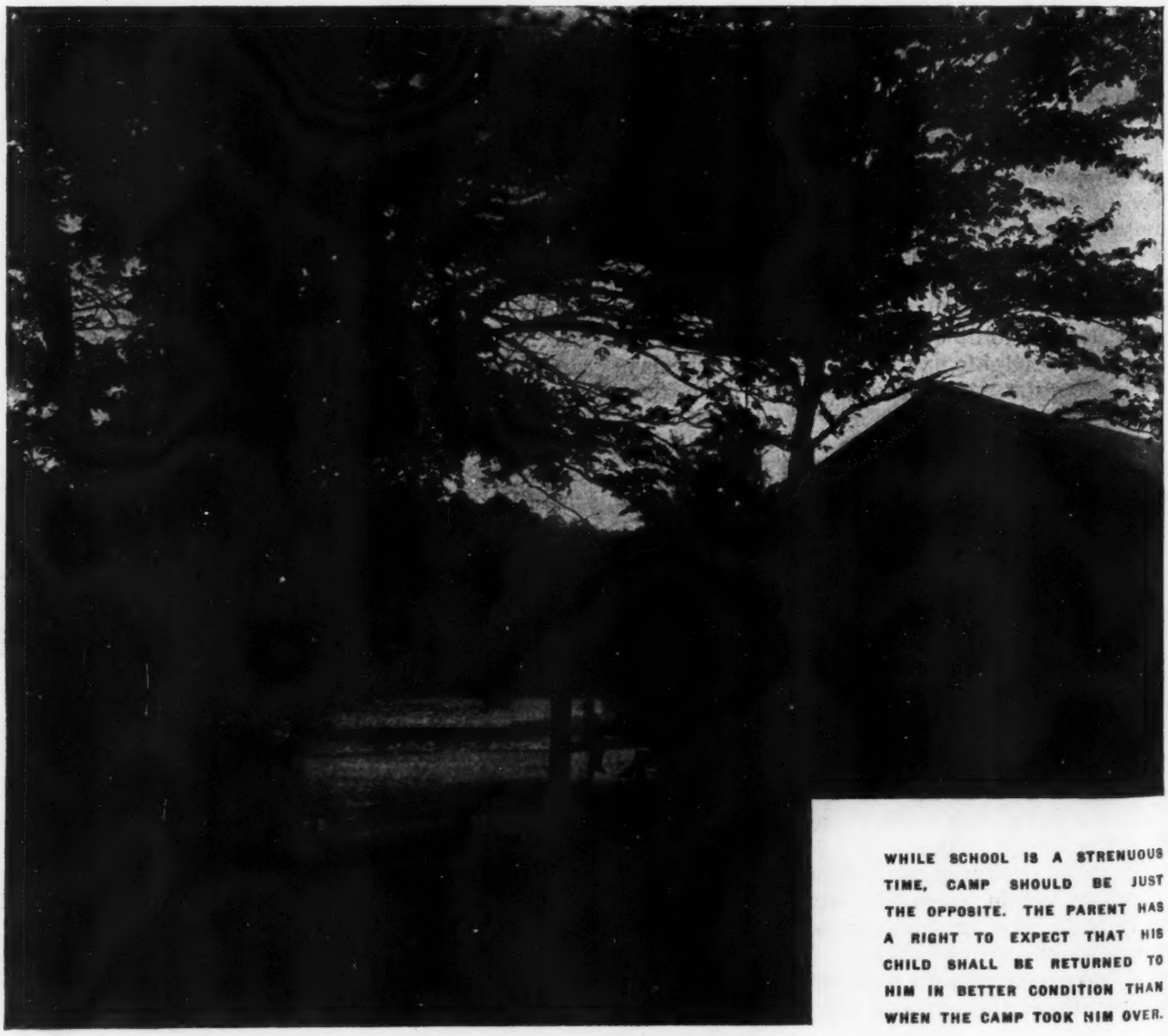
half pint individual bottles. A camp that takes this precaution is to be commended greatly.

There was a time when any good housekeeper was considered amply qualified to act as dietitian to even a large camp. That day has gone. A parent may well look with suspicion on any camp that dispenses with the services of a trained dietitian. One of the most important features of a summer in the open is the availability of an abundance of good food, well cooked, attractively served and properly balanced. An efficient dietitian never fails to save much more than her salary in the food she saves, to say nothing of the superiority of a properly planned dietary. The parent has a right to demand that the camp to which he sends his child have a graduate dietitian on its staff.

The question of medical attendance is one that cannot be dismissed lightly by saying that a camp physician should by all means be a resident member of the staff. This is sometimes possible; and when it is within the power of the director to have such a man in his official family, he is fortunate indeed. However, a moment's thought will show how difficult it frequently is to bring this about.

Comparatively few experienced physicians of the type that attend the families of the children who make up the population of our better organized private camps could afford to leave their work and take two months away from home. Most of the few who could, would prefer a real vacation, not the onerous and confining job of looking after the health of from 50 to 150 boys or girls. A recent graduate without hospital experience can sometimes be obtained; better, a hospital graduate may be willing to defer his entrance into practice till the fall; but neither of these would satisfy the demands of a discriminating parent, if a serious emergency should arise.

Many camps, therefore, have a consulting physician, preferably one living near enough to the camp so that he can be available in the event of a serious medical or surgical condi-



WHILE SCHOOL IS A STRENUOUS TIME, CAMP SHOULD BE JUST THE OPPOSITE. THE PARENT HAS A RIGHT TO EXPECT THAT HIS CHILD SHALL BE RETURNED TO HIM IN BETTER CONDITION THAN WHEN THE CAMP TOOK HIM OVER.

tion. Others make arrangements with several doctors in nearby towns or villages to whom patients can be sent or who can be called on. Such a consulting physician should know the sanitary setup and be prepared to offer skilled advice both in the prevention of disease and in any serious trouble which may develop.

Every camp should have the services of a physician daily, whether he be a recent graduate or an older man from a neighboring village or town. In no other way can proper attention be given to the minor hurts which might otherwise develop into serious infections or prove to be graver than was realized by amateur "first aiders." A daily sick-call can take care of much of this sort of medical service. Campers should be instructed that it is evidence not of pluck and Spartan manhood but of silly ignorance and bravado to neglect minor illnesses or infections.

Whatever the arrangements made for medical attention, no camp should attempt to function without the services of an excellent trained nurse. She should be young enough to enjoy life in the open with young people, yet mature and level-headed enough not to constitute a romantic problem, as sometimes happens in boys' camps. A competent trained nurse is a tower of strength to director, physician and camper alike.

A camp that is modern in its health program will avoid many of the worst health hazards by asking for certain preventive inoculations. It is wise for parents to inquire in advance what the custom of the camp is in this regard, for this attitude may well indicate the camp's up-to-date-ness and awareness of its responsibility for the maintenance of its campers' health.

A parent may wisely determine beforehand what is the practice of the camp with regard to two hazards that frequently come up in camp. One is the danger from deep wounds, especially those received in the neighborhood of the corral or stables; the other is the danger from the treatment of snakebite. The phrase "danger from the treatment" is used advisedly, for treatment of snakebite is frequently much more hazardous than the bite itself! The same thing may be true in the case of antitetanic serum, which is so commonly given in the case of penetrating wounds.

Some camps and some doctors pride themselves on giving antitetanic serum and antivenom serum as a routine measure in all cases of exposure. When we consider the increase in prevalence of various forms of allergy that occur naturally, the number of cases of increased susceptibility to proteins due to the many inoculations that modern medicine is employing and the terrific swiftness with which allergic shock acts at times, it seems wise for camps to exercise a fitting caution in the administration of either of these two serums.

One rule should be definitely understood each year by director and camp physician. The moment the question of the need of administering either of these serums arises, the camper's parent or his representative or the home physician is to be notified, preferably by telephone, otherwise by telegram. The delay of a few hours may save a life; it frequently saves a disagreeable experience from allergic shock as well as from the maddening serum sickness that supervenes so frequently a few days later.

In case of a deep stab from the fangs of a full grown rattler or copperhead or cottonmouth moccasin which is known to have bitten no prey recently, immediate administration of antivenin may be imperative. Amateur treatment of snakebite is dangerous, however, and I want to call the attention of parents—and especially of parents who know their children to be allergic—to the wisdom of having this matter fully understood between their own physician and the camp before the occasion arises

*(Continued on page 567)*

*Acme*

## FIRST CAMP

*This day is camp day. For children and mothers*
*This day is far more important than others.*
*Hatchet and dungarees; stout shoes for hiking;*
*Rain coat and blanket roll, tied to Dad's liking.*
*Will she be homesick, this first time away,*
*Lost in the crowded yet long routined day?*
*Toothbrush and comb; new middies; no pillows.*
*She will fish and catch turtles under the willows . . .*
*Will she remember how deep is the lake?*
*She swims uncertainly. . . . The list says to take*
*Bible and Scout book; camera and light*
*To use on the hikes they may take in the night;*
*Hankies and postcards. She'll grow and find new*
*Joy in companionship, gay new things to do:*
*Campfires and boating; plays, "sings" and charades;*
*Walks in sun-spattered, flower-sprinkled glades. . .*
*You know the doubts in my hesitant heart—*
*Dear God, keep her safe for me while we're apart!*

**By Revah Summersgill**

ALTHOUGH A STUTTERER WHEN ALONE CAN OFTEN READ ALOUD WITHOUT ANY APPARENT DEFECT, LET SOME ONE ENTER THE ROOM, AND THE HABIT IMMEDIATELY RETURNS.

# STUTTERING

***HERMAN M. JAHR*** *contributes the second article in his series on "Bad Habits in Good Children"*

"I AM 17 YEARS OLD. I cannot say truthfully that I ever experienced a single day of happiness. Even as a child the only thing that I can recall is mockery from every kid in the block. 'There goes K-K-K-Katy' is still my regular nightmare. I got along fairly well in grade school; the teachers never called on me to recite. My written tests were fair enough to pass me every year. High school is different. The oral recitations are more than I can stand. Rather than be laughed at, I say I don't know and take my zero. Usually I make these up in my written examinations. Some of my teachers scold me, some try to coax me into talking; but then they smile when I begin to stutter. When I sit down they tell me it was fine. But I know better, because the whole class snickers. Yes, I am invited to a dance now and then, but I have never been to one yet. They invite me only to make fun of the way I speak, and I won't be fooled. Besides, I can't dance. What's the use?"

This coherent story was given in spasmodic interludes. I had never seen Margaret previous to this, and her eagerness to "tell everything" was quite impressive. In some spots the grimacing accompanying the hard consonants was distressing. It was evident that the young woman was despondent. A fine looking girl, in good physical health, it seemed most pathetic that at this early age there should exist such profound feeling of self pity and hopelessness. Characteristically she admitted having little confidence as far as her chances for improvement were concerned. Her father stutters, her older brother stutters, her sister stutters. Every one in the family, with the exception of her mother, stutters. To make matters "conclusive" a paternal uncle "can stutter more than all the rest of us combined. He is a 'real' stutterer, especially when he tries to argue on politics. It's inherited."

There is nothing remarkable, sad though it be, for Margaret to suffer despondency over her speech defect. It is difficult indeed to locate a happy stutterer anywhere, at any time. Though always exaggerated, the social and economic barriers imposed on persons unable to express their thoughts are fully appreciated only by the victim of the handicap. It is torture to attempt the utterance of a word or a sentence only to find oneself in a repetitious

babble of ludicrous sound and uncontrollable muscle spasm.

Nor is it difficult to understand why this girl's personality at this time of her life is so distorted that she is unable to recall a happy moment in her past history. Shamed and ridiculed by her playmates, discouraged by family environment and tradition, distrustful of every one with whom she had any contact, what else can one expect from such unpleasant experiences?

Actually the girl had an uneventful childhood. She fared well with her schoolmates and took an active part in their games. According to her mother, stuttering began at about the age of 7. "We expected it, you know; it runs in her father's family." In the beginning the child received her due share of admonition and was frequently punished. A kindly teacher suggested corrective exercises, but these were soon abandoned as ineffective. Instead of improving, she stuttered more than ever "because of her attempt to control her breathing." It would be interesting to know to what extent the family actually carried out the instructions of the special teacher at the time the stuttering first began. My impression is that Margaret was expected to follow the fanatical belief that do what one will she must stutter. At the present time she is living up to the letter of this tradition. The harder she tries, the less she succeeds in controlling her muscles. The more she reads on the subject, the more hopeless the situation appears. She now believes herself to be a "stutterer type with a definite stuttering personality."

It is estimated that in the United States there are over a million stutterers. Surveys made on the economic phases of this unfortunate handicap indicate that stuttering interferes with the earning capacity of its victim to the extent of 35 per cent, using nonstutterers of the same physical, mental and educational levels as standards. These estimates were made in 1927 at the height of a prosperous era with good opportunities for gainful employment. How the handicap affects this group in years of widespread job competition should not be difficult to approximate.

Stuttering is not an affliction of birth. It is true that many veteran stutterers manifest a peculiar emotional imbalance which blocks their flow of language by throwing the various articulating muscles into purposeless and uncontrollable movement. Yet there are many thousands of so called "high-strung" children and adults who never have such blocking of speech. Also, at one time or another, practically every child goes through a period of mild stuttering. At about the age of 4 years, when language begins to assume the adult form, the speed of thought is greater than that of speech, and as a consequence of this inequality in the mechanism, irregularities in vocalization can be heard frequently. It is during this vulnerable period that this bad habit often begins.

Louis Everett was an alert little fellow who at the age of 5 years became a problem. He was the only child of highly emotional middle-aged parents, who lived in constant dread of the inevitable day when they would lose their "baby." The first day of school arrived all too soon and with much excitement. Contrary to prevailing custom, the father, mother and son had breakfast together. At the end of the meal, the father, in the manner of an after-dinner speaker with formality befitting a solemn occasion, addressed the child: "Sonny, this is the last breakfast for you as a baby. From now on you are a boy." What the remainder of the oration would have brought, had Mr. Everett had the opportunity to resume, is not known. Also Louis undoubtedly would have replied in his formal way that he had enjoyed such status for at least a year. The surgeon who set his broken arm had told him, "You are a real boy," at the time he changed his splints. But neither father nor son could think of further philosophizing on that historical morning. Mrs. Everett, at first satisfied with merely wiping an occasional tear, was now deeply moved. Her cry became, if not audible, prominent and contagious—all three cried. After much agitation the little fellow was finally driven to school by both parents.

Again, contrary to custom, Father came home a little before noon, and together with Mother he went to fetch his boy. "What did you learn

THE STUTTERER HAS A PECULIAR DISPOSITION. HE FEELS INFERIOR AND IS OVERSENSITIVE, RETICENT AND SUSPICIOUS OF EVERYBODY.

today?" was the first and natural question. "W-w-w-well," the son was overcome with information. After a momentary pause he began with great enthusiasm and minute precision to relate incidents and happenings in his new world. Now and then he would stumble over a word, some of the muscles of his face would twitch for a second or two, and he would go on with his incessant talk.

The following day, and for several days thereafter, the process was repeated. Asked what he "learned today" the boy would embark on a ceaseless verbal parade and talk until he became breathless. He seldom completed one narrative before he shifted to the next. His tongue would become twisted on occasion, but what did that matter? "Let him talk," said the father. "Some day he will talk his way into Congress."

It is well known that a stutterer when alone can often read aloud without stuttering; but let some one enter the room, and the habit will immediately reassert itself. Also many of these individuals can converse with ease, provided they do not have to think what they are saying. As soon as they are called on to combine talking with thinking, their stuttering reappears.

Now to return to little Louis. Under the stimulus of his devoted parents he could relate his classroom experiences with comparative ease. Every one enjoyed them, unconscious of the fact that the child was steadily becoming "breathier." As time went on, the novelty and interest in scholastic events began to wear off. Gradually the boy had to complement these incidents with a little originality. He had to think fast and talk fast. It was too much for him. This mechanism is offered as the possible explanation for the marked stuttering which made its appearance about a month following his entrance to school.

Mr. Everett, a practical man in spite of his paternal oversolicitude, became critical and impatient. "Don't talk like that; it's terrible," he would scold. Or, "If you can't talk like a man, don't talk at all. It's funny you talk your head off in your sleep without stuttering," and so it went. The child had developed night terrors. Father and Mother began to quarrel over disciplinary methods; the mother, as is usual because mothers often have a better instinctive understanding of the nature of the child, had taken a sympathetic attitude toward her son.

Fortunately it was possible to enlist the aid of a teacher who was able to reeducate the family, and under competent instruction, Louis made a complete recovery. He is now 10 years old, and he is still imbued with political ambition, early fostered by his daddy. "A Congressman," he argues, "don't have to know much."

This case is not unique in any way. As stated earlier, practically every child goes through a stuttering stage. The excitement incident to the new environment occasioned by the entrance into kindergarten often serves as a predisposing cause to stuttering. It is evident that the greater the excitement, the greater becomes the danger of development of such a troublesome habit. As a corollary two factors in prevention become apparent. First, during this epoch, when the youngster's speaking apparatus is immature and vulnerable, it should not be strained. The child should not be given the opportunity to talk until he becomes short of breath. Speaking is closely associated with respiration, and unless due care is exercised, faulty breathing habits may bring about stuttering. Second, parents whose sentiment overwhelms their inclination to reasoning must bring themselves to understand that whatever hysterical reactions they manifest will more than likely be reflected in the attitude of their child.

In the course of his development the child reaches the age where he is ready for school. This is an inevitable process agreed to by society and serves in the best interests of all concerned. The child enters on a new environment; he becomes a member of a large group where rules and regulations prevail to the advantage of the whole group rather than of the single individual. There are restrictions as to time and place and personal conduct. The youngster thus has enough of a task to adapt himself to his new world without worrying about his mother's tears when she leaves him on the school grounds. Most of us do not realize this, but children are quite capable of worrying. And the child's worries are aggravated by real or imaginary fears. That the average child achieves school adaptation unconsciously does not lessen his need for emotional tranquillity and parental equanimity.

Now and then a child becomes a stutterer by imitating another stutterer. Unless the habit is checked early, the condition can become most stubborn. Robert Larson began to imitate a classmate in the fifth grade. He was 10 years old and "a perfect mimic." He was so skilful in his art that each day when school was dismissed groups of boys and girls would gather around him to be entertained by his imitations. He soon set up in business in a tent in the back yard, and his fame as a performer spread throughout the district. Admission to the "show" ranged from 1 to 3 cents, depending on how much each spectator could yield. His original model, at first resentful but helpless, was finally induced to enter into partnership on a percentage basis. Interestingly enough, by the time the novelty of this team had worn off, the real stutterer was practically cured; but with the "artist," stuttering remained a habit!

Sudden emotional shock, such as fright or remorse, at times leads to stuttering. When the onset can definitely be determined and traced to its origin, it is often *(Continued on page 550)*

# Prayer of a Lazy Intern

## (*On Seeing Joel McCrea in "Internes Can't Take Money"*)

*I*

*Hear me, Apollo,*
*As I prea*
*For the surgical skill*
*Of Joel McCrea!*
*Skill to see strep*
*Without microscope,*
*Skill to scrub up*
*Without liquid soap,*
*Skill to do brand-*
*New operations*
*In spite of the Chief,*
*Winning praises of nations!*

*II*

*Skill to save gangsters*
*In foul saloons—*
*But, Apollo, of all the*
*Surgical boons*
*I crave from thy so*
*Mighty hand,*
*Skill to annex*
*That gorgeous Grand!*
*A thousand bucks*
*For a minor job!*
*I'd refuse it too*
*With a noble sob.*

*III*

*For a gunman's Moll*
*And her long-lost child*
*The task assigned*
*Is a trifle wild;*
*But it's worth it for just*
*That fleeting chance*
*To feel One Grand*
*In an intern's pance!*

***By Park J. White Jr.***

# PARASITE TRICKS: IV

***Small in size but mighty in its power to bring sickness and suffering, the mosquito remains a disagreeable and dangerous enemy for man to conquer,***
***says GEORGE A. SKINNER***

WHY ALL this fuss about mosquitoes during the past few years? Haven't we always had mosquitoes and haven't they always pestered us more or less? Both of these questions may be answered in the affirmative, but the change has come about because we have learned so much more about them and discovered that they transmit a number of diseases, one of which is the cause of more disability and deaths than is any other disease known to man. Hence they have become a constantly increasing subject of interest to us, and the knowledge now possessed by the medical profession is definite enough to pass on to all who will take the time to inform themselves on this really vital subject. While mosquitoes may only annoy in some of the more northern countries, they are a direct cause of a tremendous amount of sickness, disability, suffering and death in many parts of the earth's surface, either intermittently or all the time.

Mosquitoes are among the smaller insects; yet in proportion to the size of the disease germs they are capable of transmitting to the human family, they are very large and able to carry thousands of deadly parasites at one time. It is the story of the mosquito and how it carries these parasites to man that is now presented.

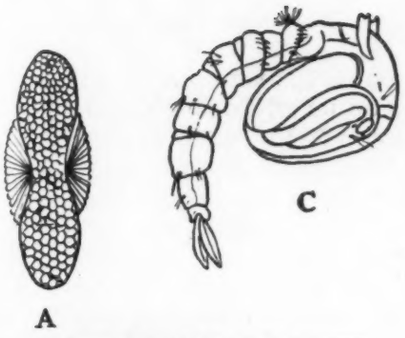
Mosquitoes are among the insects that undergo a complete cycle of changes from the egg to the adult. Some insects when hatched are small reproductions of their parent. But with mosquitoes the young, or the larval and pupal forms, are entirely different from the adult. If we do not recognize them in these changed forms, we will be much handicapped in trying to control them.

All the way through this story it is the female mosquito that we are interested in. The male is only of incidental interest, as he does not bite and is not much in evidence. But the ladies of this race are out after blood and are equipped with a satisfactory set of tools for getting it; while the male lives only on plant juices and could not bite if he would. Right here it may be remarked that mosquitoes do not bite; they saw their way through the skin.

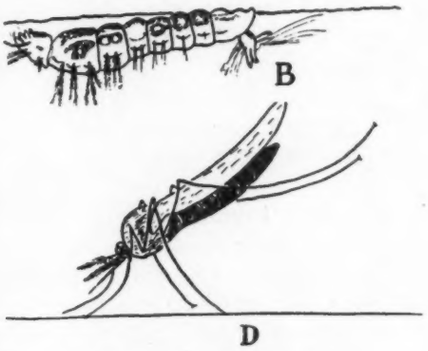
Our lady mosquito lays her eggs usually in water. While different species differ in the places they select, each species is rather particular. Thus we have those that deposit eggs only in clear, fresh water, those that prefer brackish water, and some that even choose salt water. This water may be the best of its kind, or it may be much contaminated. So mosquitoes breed in dirty water, in water from cesspools or in sewage. Some prefer to live in or near human habitations and others far back in the woods or jungles. The eggs may be easy to find, or they may be carefully concealed. One species seeks holes in trees and stumps, where they are unlikely to be found. Others breed in little spaces around the leaves of plants, such as banana plants, and some in flowers, such as lilies, which sometimes hold water for a long period. They may use whole lakes or swamps, but they may also breed plentifully in tin cans hidden in the grass, in the eaves of houses when a little water collects because of blocked spouts, in hoof tracks of cattle or in any place where a little water remains for over a week. Some will deposit their eggs on the banks of streams or ponds; and if the moisture disappears, the drying does not damage the eggs in the least. They simply remain dormant until the periodic return of the water, then develop suddenly and often in prodigious numbers until one wonders where they all come from.

The eggs take a number of forms. The more common ones, those of the Culex, are deposited in the form of little rafts. If looked at through a magnifying glass each one can be seen separately, and they resemble a group of tiny bullets stuck together. Often there are several hundred eggs in such a raft, and there is a little trap door at the bottom of each egg, where the larva, or wiggler, may escape when developed. Another common genus, the Anopheles, deposits eggs singly though often many in the same locality. Each egg has little air chambers at either side, which keep it floating. Most mosquito eggs are brownish, and unless one is looking for them they are likely to escape notice.

In a few days the eggs mature. If the weather is warm they may develop in a short time; while if it is cold or dry, development may be much retarded. Usually in about three or four days the eggs mature and the larvae or wigglers escape from them and commence to live a free life in the water. At first they are so tiny that one may look directly at them and not see them unless accustomed to their appearance, but they grow rapidly and are soon large enough to be readily seen. It is this form with which we are most familiar. Some hang with the head downward when resting at the surface, and others lie

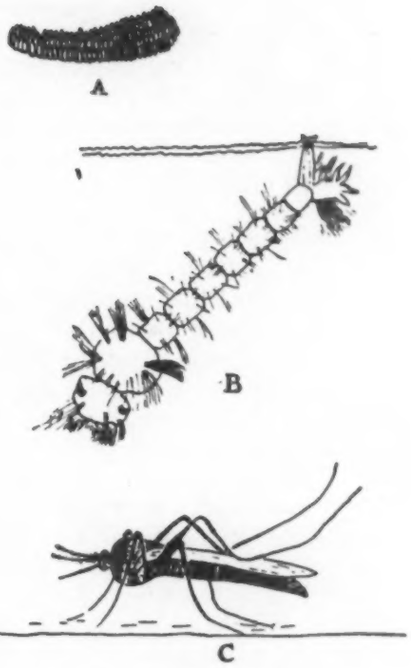



ANOPHELES MOSQUITO: (A) EGG WITH AIR CELLS, OR FLOATS, AT EITHER SIDE; (B) LARVA, WHICH, FEEDING CLOSE TO SURFACE, WILL BE KILLED BY POISON SPREAD ON WATER; (C) PUPA, OR RESTING STAGE; (D) AT REST, MOSQUITO "STANDS ON ITS HEAD."

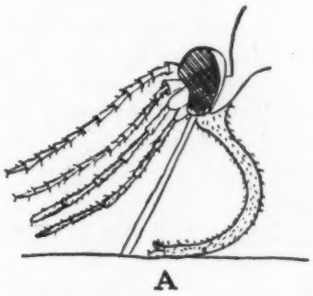


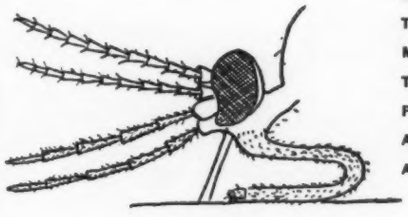

CULEX MOSQUITO: (A) EGG MASS, OR RAFT; (B) LARVA, OR WIGGLER, WHICH, FEEDING WELL BELOW THE SURFACE, IS SELDOM DAMAGED BY SURFACE POISONS; (C) MOSQUITO AT REST, BODY ALMOST PARALLEL TO SURFACE ON WHICH IT STANDS.

ANOPHELES MOSQUITO



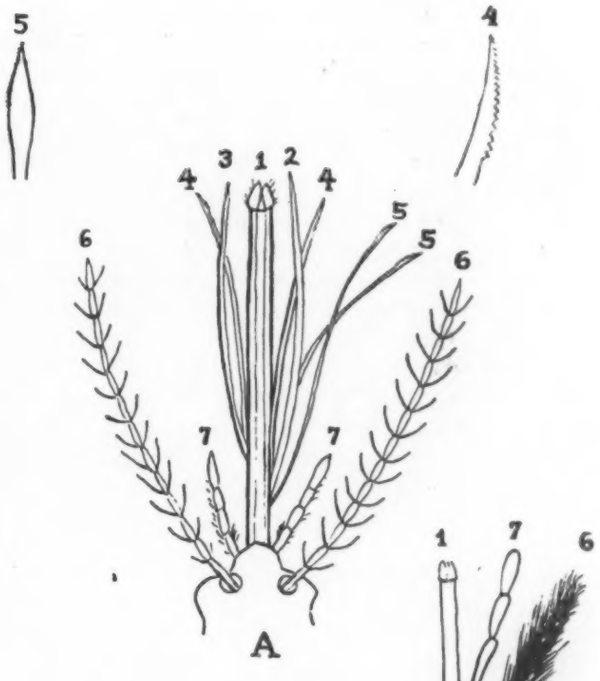

CULEX MOSQUITO




GOING INTO ACTION: (A) THE PROBOSCIS, OR TOOL CASE, STARTS TO BEND AS TOOLS PENETRATE SKIN; (B) AS THEY GO DEEPER, IT BENDS INTO A SHARP LOOP. THE MEAL COMPLETED, THE MOSQUITO REMOVES THE TOOLS WITH A JERK, PACKS THEM IN THE CASE AND FLIES AWAY TO REST AND DIGEST HER MEAL.

TOOL KIT IN ACTION




TOOL KIT OF MOSQUITO

(A) IN THE FEMALE MOSQUITO: 1, PROBOSCIS, OR LOWER LIP, WHICH ACTS AS A SCABBARD FOR THE CUTTING TOOLS; 2, FOOD CHANNEL; 3, SALIVARY DUCT, THROUGH WHICH MOSQUITO INJECTS PARASITES AND ALSO SALIVA TO KEEP BLOOD LIQUID (ONLY THE FEMALE IS A BLOOD SUCKER; THE MALE LIVES ON PLANT VINES); 4, UPPER JAWS, WITH POWERFUL SAWS AT ENDS; 5, LOWER JAWS WITH SMALLER SAWS (IN THE UPPER CORNERS, 4 AND 5 ARE SHOWN GREATLY ENLARGED); 6, ANTENNAE—THESE ARE HAIRY AND PLUMELIKE IN THE MALE, AS SHOWN IN (B); 7, PALPI, PART OF FEEDING APPARATUS. (B), TOOLS OF THE MALE. ALL FIGURES ON THIS PAGE ARE GREATLY MAGNIFIED.

flat and just under the surface of the water. The former have quite long breathing tubes, and the latter short ones, and this fact makes it easy to differentiate among them. All must get to the surface frequently, as they are air breathers, even though they live in the water. If the wigglers hang with the head down, they are usually regarded as harmless in northern countries, but this does not hold for warm countries at all. If the wiggler lies flat along the surface, it is one of the varieties that transmit malaria and is always dangerous to health. The malarial mosquito when at rest "stands on its head"; that is, the head is quite close to the surface, while the body projects away from it at an angle of about 45 degrees. Most other species rest with the body parallel to the surface.

During the wiggler stage the mosquitoes are very active, eat all the time they can and grow with exceeding rapidity. Usually they eat tiny life forms in the water, sometimes vegetable matter and occasionally each other. Their life is not ordinarily an easy one, for to many fish they are dainty morsels, and millions of larvae are so destroyed, fortunately for man. The larval forms of other insects, such as the dragon fly, are particularly fond of wigglers and do much toward limiting their number. But there are so many of them that some always escape and reach the resting, or pupal, stage. At this period they stop eating entirely and are less active, though still able to move rapidly. Usually we do not note the difference, however. But if we capture one and look closely, we will see that the anterior end is much larger than it is in the wiggler, and the wings, legs and head can be seen imperfectly through a sort of shell around it. Its active tail gives it a jerky motion, but it is much lazier than the larvae. The pupal stage is usually quite short. In three or four days the pupa comes to the surface of the water, tears open the back of its jacket and gradually crawls out.

This is the most critical time in the life of the mosquito. It must use its pupal case as a raft, as when it first emerges its wings are soft and flabby, and it cannot fly. If there is a little wind, or the water is rough, or some hungry dragon fly comes along, the career is stopped right there. But again some of them always seem to select the right conditions, and in a few minutes the wings harden, and they fly away. The males usually hatch first and loaf around to await the appearance of the ladies. Weddings are numerous and rapid, and the gentlemen depart to feed on nectar and honey, while the ladies start out in search of blood, which they must have to mature their eggs. It is easy to tell the male, for he wears quite a distinct set of whiskers, while the lady is not so ornamented. But the female carries the tool kit, and she knows how to use it. Just watch one at work. Let her light on your forearm where you can see her readily, and you will find that after she has located a satisfactory spot, and she decides this point with astonishing rapidity, she commences to weave back and forth a bit, like the able sawyer she is. If you have a magnifying glass you can see the case in which she carries the tools commence to bend while the spears and saws penetrate the skin. Usually you will feel nothing for a time; but about the time she has swelled up almost to the bursting point with good red blood and probably has flown heavily away to find a safe resting place to digest the meal, you begin to feel an itching and to slap viciously at the spot if you have not been watching the process. This delayed reaction seems to be a protective device for the mosquito, but sometimes it is not slow enough, and you do smash her before she can escape.

These are the things we see. Now what trick is she playing on us while she has been sawing through our skins? Let us look at the tool kit in order to visualize a little more clearly what has been going on. The drawing has been purposely simplified somewhat, but aside from rarely being able to see all these parts in the same mosquito, it is accurate. The central part is a case that contains all the cutting tools when not in use. It is a modified lower lip, which is usually spoken of as the proboscis. We see two fine hypodermic needles; there are two pairs of saws somewhat different in size and shape, and the other parts we may disregard, as they take little part in the process now under investigation.

Having rapidly sawed through the skin, she puts in the first hypodermic needle and injects some saliva, which keeps the blood from clotting, for it must be very fluid to pass through the second needle, which is exceedingly small. There is a strong suction pump in the head that pulls the blood through the second hypodermic and a little force pump that drives the saliva into the wound. About the time we feel the irritation of the salivary secretion and the skin begins to itch and turn red around the bite, the mosquito has finished her meal, folded up her tool kit and departed.

To understand just how this process may seriously infect the human being with malaria or other disease, we must look for a moment at the malarial parasite and see how it successfully cooperates with the mosquito and uses it to play this disagreeable trick on us, which it does constantly and often with exceedingly disastrous results.

When the malaria parasite originated is not known, but probably it was originally a free living form that found it much easier to live by attaching itself to larger forms. So it has done from remote ages, until it cannot live unless it has both mosquitoes and animals to help it. We will have to imagine the beginnings, because it has lived here so much longer than mankind and has been a curse to man since the beginning of history and doubtless many centuries before. It is exceedingly small and lives in the blood of both man and animals, but for the present we will consider only the form in man. When a person has a chill, untold millions of new parasites are liberated into the blood stream and quickly attack the red blood corpuscles.

These new parasites are called sporozoites, meaning spores or seeds. These grow rapidly and soon divide into a number of parts. Usually there is only one parasite in each of the blood corpuscles attacked, but by breaking up into numerous parts and each part enlarging, the corpuscle soon becomes so distended that it really blows up, and *(Continued on page 566)*

*There is a psychology to the play of mature persons. In part III* **DUDLEY B. REED** *throws new light on its many facets*

HERE BEGINNETH a chapter in which we shall speedily find ourselves beyond our depth, a chapter concerning itself largely with the psychology of physical recreation, a subject about which little has been written and to which not a great deal of thought has been given. If you, like me, know nothing of psychology we are perhaps no worse off than many others who have written or read about it. And at least we do know about half of the subject, the physical recreation half. Probably there is no greater impropriety in expressions of opinion about psychology by one who is ignorant of it than in a psychologist's posing as an authority on physical education when he knows nothing of it, and this breach of etiquette has been committed now and again.

At least three of the psychologic aspects of exercise for recreation appear worthy of attention, and we may as well begin with the first. Recently I read an article about Archie San Romani, one of the fleetest mile runners of all time, in which it was stated that he seemed to possess a power of concentration which enabled him to go "all out" in a race, to stimulate himself to the utmost of which his neuromuscular mechanism is capable. How often have we encountered this word "concentration" in connection with athletic performance. The golf tyro is adjured to concentrate and tries to concentrate on feet, head, balance, wrists and hips to his utter confusion. The competitive golf professional is said by the sports reporter to have such concentration on a certain day that he is unbeatable. The same is true of good competitors in other games, baseball, tennis or what you will: They must exclude other mental activities and rivet their attention on the job in hand.

MOST MEN ARE "PRACTICE ATHLETES": THEY DO WELL IN PRACTICE, BUT IN COMPETITION THEY DO NOT COME THROUGH.

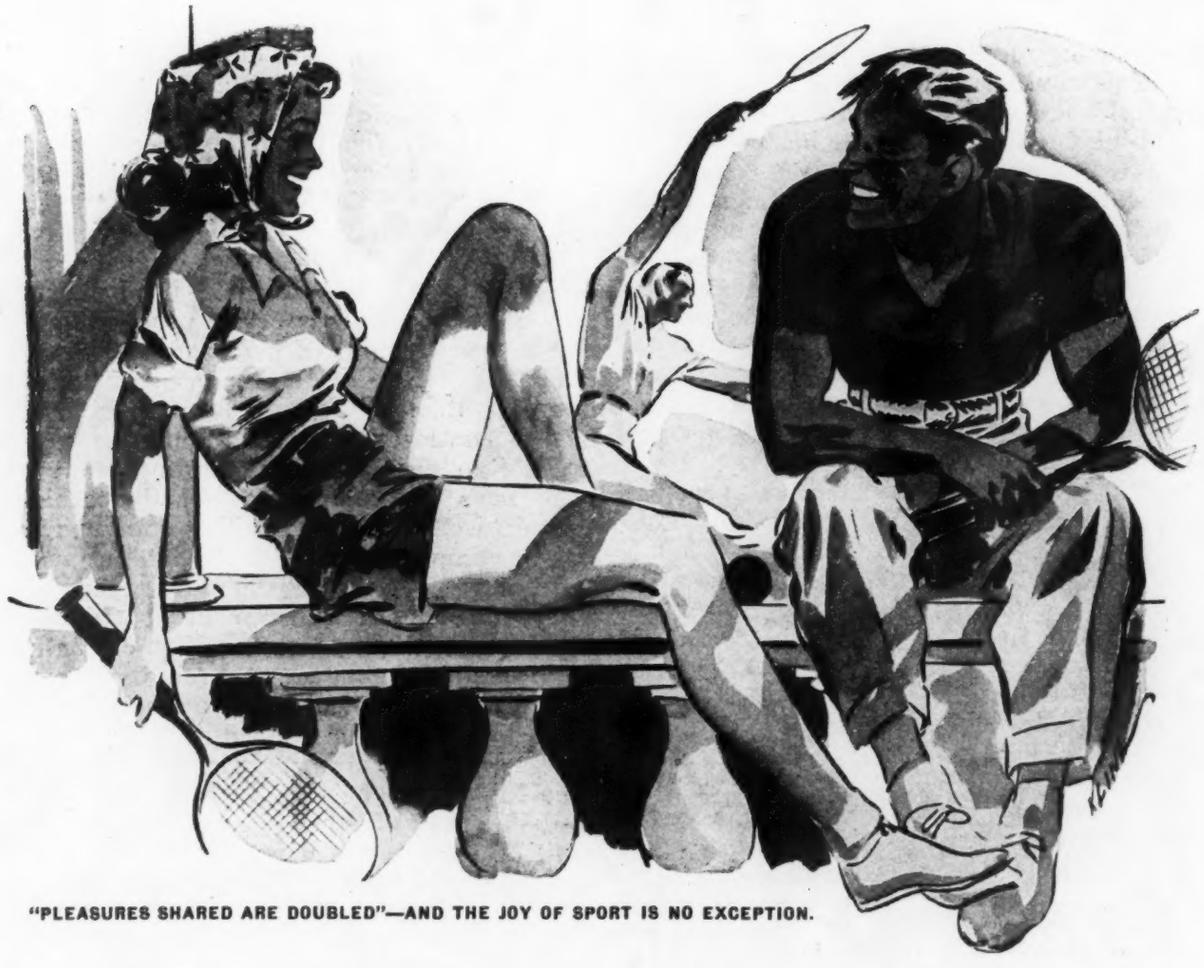
So we have what are called "money players," players who are at their best when the stakes are highest, players who make hard plays look easy, players who may err in practice but who rise to great heights of performance when in a crisis. Jack Lovelock seems to be of this select number. Beaten in unimportant races at times, he has contrived to push his chest across the finish line first in the most important ones. Most boys and men are "practice athletes"; they do well in practice with woods and irons, but in competition they find that the auspices are not right, and they do not come through. They shoot baskets from all positions and angles throughout the week, but on Saturday night against their dearest rivals their eyes are just off, and they can't score a single field goal, while Wilson, of the opposition, goes crazy and scores seventeen points. It is remotely possible that this might be due to luck. It is highly probable that Wilson is psychologically a competitive athlete, best when the going is hardest. All highly successful athletes must be of this type.

Concentration, however, does not seem to be the only psychologic factor in producing such

results. Some men seem to be able to translate an inner fire into muscular activity. It is said to be true physiologically that fatigue does not usually involve exhausted muscle but exhausted nerve. Either the nerve endings or some other part of their substance gives out, so that ordinary stimuli produce no results, but stronger stimuli do. A man apparently exhausted and receiving a sudden fright may do a respectable job of running. H. O. (Pat) Page was a famous athlete at the University of Chicago and was coaching there when I first appeared on the scene. Never a large man, perhaps 160 pounds and not especially muscular, he has fulfilled my notion of a human dynamo. Playing against the varsity in football or basketball he could galvanize himself into such a frenzy of muscular activity that he frightened many a bigger and stronger man. He could do more physical work with less muscular power because he was able to provide stronger stimuli. Beware of the man of reasonable muscular equipment whose psychologic, or spiritual, fires are hot. He is likely to accomplish more than you expect sooner than you expect. Concentration plus this power of getting the utmost out of one's muscles has made many a 150 pound center a man to be reckoned with. A good big man may be the best, but a small, fiery man will excel many a big man.

These remarks are made merely for information or the recollection of what you have noticed; they are not supposed to incite middle-aged men to stir up their spiritual fires and see how much they can accomplish physically. For them and me it is permissible to dampen the fires and transfer the ictus from them to judgment. The man of our age should be sane above all things and in all things. Let moderation be the watchword.

"Oh, to be a boy again" is a thought which has passed through the lips or at least the mind of many a man. He wouldn't really like to be a boy again, but the American boy is an attractive figure. You know him—selfish, careless, noisy, heedless, cruel, mischievous; you know him—generous, affectionate, honest, frank, enthusiastic. All these things he is and many more. He has as many facets as a crown jewel and as bright. At one moment you like him wholeheartedly, and the next you would like to beat him within an inch of his life. But however you regard him, and whatever facets he shows, he is practically always natural. His are not the conventions and artifices of his older sister. What he thinks, he is likely to say.



"PLEASURES SHARED ARE DOUBLED"—AND THE JOY OF SPORT IS NO EXCEPTION.

What he is, you are able to see. And a grown man is never more natural, more nearly a boy again, than when he is at play. At such times he discards his spiritual coverings. He doffs his coat of pretense, his waistcoat of propriety, his shirt of restraint and finally, like the prodigal son, he comes to himself. On golf course or tennis court the lawyer forgets the verbiage of his clan, the "whereases," "heirs and assigns" and "corpus delicti" or possibly "corpora delictorum"; the business man is shorn of that weird and exotic excrescence euphemistically known as business English. No longer does he intone to a gum-chewing damsel,

> Your favor of an even date received and contents noted
> And in reply beg to advise that irregardless of the size
> The price remains as quoted. The price remains as is.

Even the cleric uses or finds ear and soul satisfying substitutes for the two-word vocabulary of golf, "if" and "damn."

Not in diction alone does the man engaged in a gainful occupation surround himself with a protective coloration. In most such occupations there are traditional, more or less universal camouflages, and there are individual transformations. The merchant, for example, may have adopted the slogan that the customer is always right, although he knows that a customer often has the accent on the first syllable, that he is apt to be unduly exacting, disagreeable, rude and undoubtedly and eternally wrong. But the customer's dollar is worth angling for with any reasonable bait, and that bait includes the endurance by salesman or saleswoman of injustice, insult, profanity and abuse. But what a heaven-sent satisfaction it would be if such a salesman could meet such a customer on the play field, where inhibitions are *de trop* and no fair holds are barred, and there indicate in well chosen words, clearly but incisively, the ancestry and ultimate destination of the bounder.

If a physician has a bedside manner, he doesn't carry it with him to the duck blind or the skating rink. If the judge must be forbiddingly dignified in his wig and gown, he may exchange wisecracks with the ordinary citizen on the bowling alley, and it may well be that the impudent ordinary citizen instead of addressing the judge as "Your Honor" will hail him with, "Hello, Buck, you old walrus, how are they falling?" And if so, the old walrus won't be much pained, for in this play business the motives are different. One isn't trying to lure the wary dollar out of somebody's pocket or seeking to put on a front and seem more wealthy than one is, for the millionaire may be hobnobbing with a clerk if they play about the same game and like each other. The player isn't seeking to maintain his dignity. To be sure he may try to bluff a bit, saying that he can never play his best in a high wind or that he didn't sleep much the night before; but these alibis are always seen through, and when they are offered the offerer knows that they will be seen through. Possibly in no other relationship of life is a person so likely to be his own unvarnished self. Of course he is desirous of recognition from his fellows, one of the most powerful motives known to us, but he knows that this recognition will be gained by his being a good fellow and good sportsman or being a good performer at the sport in hand, not by his ability to hire a good professional or a snappy chauffeur.

And this is a good deal like being a boy again, for the boy, before he reaches the age of thinking that he is in love, stands pretty much on his own feet with the other boys. He is or is not a good guy, depending on what he is and what he can do.

It is said that games like golf are much used for business purposes, that men invite prospective buyers to their clubs and play with them even though they dislike them cordially. Doubtless this is true, and thus a fine game is sometimes prostituted for commercial ends. But this isn't the rule. A man will do business with any one, but he usually plays with people whom he likes. And this is one of the distinctions between professionalism and amateurism.

Also if you really wish to know a man, you should be with him at play as well as at work. The man who always sees the close ones his way at tennis or nudges his ball out of the rough with his toe at golf may not be just the man you want to hire for a responsible position. The full sense of justice which you want in your most intimate business associates may not reside in the person who habitually blames defeat on his partner, on bad luck or something apart from his own poor play or lack of courage. Because a man is more completely natural at play, he may reveal more of himself in one afternoon of it than in months of business activity.

Friendships are apt to grow from associations with common purposes. Thus they may, but do not necessarily, develop from business relations. A doctor has a new patient. He does the best he can by that patient. He wishes him to return again and may find his case very interesting medically; but the very reasons which make him interesting medically may make him most obnoxious socially even in the absence of that unfortunate condition about which even your best friend will not tell you. Professionally, a man may be most interesting to a doctor because he is a chronic grouch and beats his wife without reason, but the doctor won't cultivate the fellow as a bridge partner. The lawyer takes many a client whom he wouldn't invite to his home to meet his wife and daughters. The merchant will extend credit, but not invitations to his club, to any buyer who has a good credit rating. *(Continued on page 564)*

NO WAIL of childhood is more frequently heard than "I've got a tummy ache" or words to that effect. Even an infant, long before he can say a word, may plainly exhibit symptoms which show that he is suffering pain within his tiny abdomen. The causes of abdominal pain are legion. We are aware that a headache does not necessarily mean that there is something wrong with the head. It is likewise true that a pain in the abdomen may be caused by a disturbance in some other part of the body.

It is a common but fallacious opinion that abdominal pain in a child or an infant has no special significance other than indigestion. This is usually attributed to an indiscretion in diet or neglect of habit time. For this complaint no drug is more frequently administered than a physic, either castor oil or some patented preparation. The inference that the pain is due to indigestion may be correct, and it is likely that a physic will correct the complaint. But—it is equally true that a physic may aggravate the condition to a point where the life of the child is imperiled. Tragedies due to disregard of this fact by parents are so well known that cathartics are regarded by physicians as potentially dangerous drugs when administered thoughtlessly. Like a stick of dynamite a physic serves a definite, useful purpose when employed intelligently, but without complete knowledge of its effects its use may be the cause of irretrievable disaster.

A "stomachache" may or may not be a *stomach*ache. If the trouble is actually within this organ, an indiscretion in diet is the most probable cause. The first thought is that some "indigestible" food has been eaten. It is far more probable that the distress is caused by the quantity rather than the quality of the food eaten. An excessive amount of anything that is eaten can cause the stomach to become overloaded, giving rise to severe pain. Food which is either too hot or too cold can cause a painful stomach reaction. The American child's lust for ice-cold "pop" adds its contribution to the cry, "tummy ache!" In the same manner the stomach resents other insults to its delicate lining, such as receiving food which is insufficiently chewed. It cares little for the fact that Tommy had to eat in haste so that he would not be late for school or because he wanted to run out and play. It knows only that it now has to perform a job that should have been done by Tommy's teeth; and to make matters worse the stomach looks in vain for the saliva that should have been mixed with the food in Tommy's mouth and which is so helpful in the digestion of the starchy particles in the food mass. "Woe is me," cries the stomach as it tackles the bolus. "Woe is me," echoes Tommy.

COLD POP—BELOVED ENEMY OF THE AMERICAN CHILD

**By HERBERT L. HERSCHENSOHN**

Appendicitis occurs so frequently in children it should always be thought of when a child complains of abdominal distress. Until recently it was a common opinion that children just didn't get appendicitis; that this condition was peculiar to adults only. Tragedies which followed in the wake of this erroneous belief rudely opened the eyes of the public to the fact that the appendix has no regard for age. My son's appendix was removed when he was only 4 weeks old. My daughter's appendix was removed at 8 years of age, instantly putting to an end a long trail of abdominal complaints dating back to infancy.

When correctly diagnosed and operated on without delay, appendicitis is of little consequence. Children respond to abdominal surgery surprisingly well if the offending organ is removed before it has had an opportunity to spread its devastating influence to the surrounding tissues. It is not unusual for a child to be released from the hospital on the fifth day after an appendectomy and to be back at school on the eighth. This will not be the case, however, in those instances in which a mistaken diagnosis of indigestion is made and a physic administered. No matter how apparently harmless a physic may be, once it is swallowed there is no magic charm which can stay its deleterious effects. It can and has committed murder. Reposing with smug indifference on almost every bathroom shelf the physic, whether it be in the form of a liquid, salt, tablet, chewing gum or candy, mocks the scientific progress which should be common knowledge to every one. How this overworshipped panacea, garbed in an artistic package, must look with contempt on the plain cardboard box of medicine next to it on which is stuck a druggist's label and a physician's name!

A physic excites the intestines into abnormal activity so that the purpose for which it was taken will be accomplished. The appendix, being part of the intestintal tract, is likewise affected. If it should be inflamed, it requires no stretch of the imagination to visualize what can happen. The inflammatory process is fanned into greater fiery activity. What might have been an easily controlled appendicitis is suddenly transformed by the superimposed irritation of the physic into a hotbed of trouble which can too easily result in perforation, peritonitis and death.

The family consultation would be humorous were it not for the fact that the fate of a human life is hanging delicately in the balance. Little Willie stops playing in the street and comes into the house complaining of a stomachache. Mother, who is chatting with Mrs. Jones, gives him a passing glance and says, "That's what you get for eating all kinds of things. Get me the bottle of castor oil." Willie howls, "No, I don't want it. I won't take it." Mother narrows her eyes and says, "You will, young man, when your father gets home."

Mrs. Jones shakes her head disapprovingly. "Do you know what the trouble is with Willie? Well, I'll tell you. It's stomach flu, that's what it is. I know, because my husband had the same thing last year. And do you know what the doctor prescribed? It was . . . let's see, what was it again? Just a minute. I'll call up my maid. She might remember."

Eventually, Father comes home and finds Willie coiled up in a chair holding his abdomen. He disagrees with Mother about the physic as he reaches into his vest pocket and pulls out a small metal box of Quack's Indigestion Tablets. "A couple of these, Willie, will do the trick." Willie chokes them down.

Big Brother rushes in just in time for dinner. He sizes up the situation. "Better call a doctor. For all you know it might be appendicitis."

Mother laughs dryly. "A child with appendicitis, indeed! When I was a little girl, Mother used to give us children herb tea, and we all got better."

Brother is unmoved. "Maybe you did get better, but there were plenty of other kids who didn't. In your days every one had 'colic,' and many of them died. Today, doctors know that a colic case may be appendicitis or some other condition which requires surgery, and the children's lives are saved."

Father thinks it over. "Maybe you are right. Come here, Willie. Let's see now. Show me exactly where it hurts you. Oh, right in the middle of your stomach. Well, it couldn't be the appendix because that is way down here on the right side—or is it the left? Anyway, it isn't the appendix."

The consultation continues in circles until little Willie gets better or becomes so desperately ill that a physician is summoned to the

IF THE "TUMMY ACHE" IS REALLY APPENDICITIS, A PHYSIC MAY BE THE CHILD'S DEATH WARRANT.

scene, usually in the dead of night. Too often the physician shakes his head and says, "I wish I could have seen this youngster sooner. His chances for recovery would have been better."

Once the diagnosis of appendicitis is established, it is ideal to operate as soon as possible unless the abdomen is in the throes of a volcanic eruption. Considering the average case, if the operation is performed within twenty-four hours after the onset of symptoms, recovery is almost certain. If there is a delay of thirty-six hours the appendix may become gangrenous. By eighty-four hours, rupture of the appendix is probable. Certainly this does not mean that every case will terminate in this manner if neglected. It frequently happens that the inflammation of the appendix subsides. However, the chances are that the appendix is smoldering and at any moment, even after an interval of years, may suddenly flare up again, igniting the abdomen into a fiery cauldron. It is not only good judgment but a life saving measure to remove an appendix which has at one time been troublesome. The operation is more easily performed and recovery is quicker when the appendix is quiet.

Of all surgical abdominal emergencies in children the appendix is responsible for over 40 per cent of the cases. Intussusception is a close second in frequency. If you grasp a thin, flexible rubber tube with both hands you can, by bringing your hands together, make one part of the tube "swallow" the other. The same thing may happen to the intestine, especially in very young children and infants.

The symptoms are so classic it is almost possible to make a diagnosis of intussusception over the telephone. A baby, normal in every way and "the picture of health," suddenly becomes severely ill, perhaps awakening from a deep sleep. There is violent abdominal pain, usually accompanied by vomiting. The arms and legs move incessantly. After a while the pain subsides, only to return again and again. The intestinal damage frequently causes a little blood to be passed, a significant sign.

The painful attacks may gradually cease, and the child apparently improves. After a day or two he may not cry at all, but it is readily evident that the little fellow is unhappy. If the pain reoccurs, he throws himself to one side, takes a deep breath and perhaps vomits.

The importance of an immediate diagnosis cannot be overemphasized. If the child is suffering from an intussusception there is usually only one thing to be done. Surgery! In most cases a delay of twenty-four hours means death. Those who are fortunate enough to be operated on within six hours after the onset of symptoms enjoy a rapid convalescence.

Intussusception is one of the oldest abdominal lesions on record. Over 2,300 years ago, Hippocrates recognized it and suggested rectal injections as treatment. It is the most common cause of intestinal obstruction in infancy and childhood, and any conservative treatment which could prove to be as successfully effective as surgery would be welcomed. The rectal injection of water under definite pressure has been the means of correcting this condition and is often attempted before an operation is performed; but even then the surgeon stands by in readiness should the method fail.

Children as well as adults are sometimes sensitive to certain foods. Such an allergy may cause severe abdominal pains. Almost any food may be responsible. Berries are ordinarily considered the greatest offenders, but milk and products derived from it, eggs, meat, cereals, flour, vegetables and fruits have been known to affect certain individuals. To the observant parent it will soon be noticed that the pains come on soon after eating certain foods and at no other time. Eliminating those particular foods from the diet puts an end to the complaint. Even though allergy may be the cause of the abdominal distress it is better to assume that the condition is of more serious nature when the first attack occurs. One must not assume that the pain is due to allergy until it is definitely established that there is no other condition which can be responsible.

Food poisoning cannot be overlooked as a cause of abdominal pain, especially in children. Usually, however, other children or members of the family who have eaten the same food will also be taken ill, and the diagnosis is made with comparative ease.

Diseases of the chest, notably those of the respiratory system, may cause a referred abdominal pain which is so severe that the true condition of the child is not recognized at first. Pneumonia and pleurisy have been mistaken for appendicitis. Rheumatic diseases may assume varieties in children that are not encountered in adults. One such form is abdominal rheumatism, which may be so acute that it too may be mistaken for appendicitis or peritonitis. This condition is not common, but it can and does occur. Abdominal pain may be due to the presence of toxins following tonsillitis, influenza, measles and infectious diseases in general. Physical exertion in playing games, swinging, hiking and running can cause a stomachache.

The folly of a parent attempting to diagnose the cause of abdominal pain in a child is at once apparent. It ceases to be folly and borders on the criminally tragic when the parent goes a step further and attempts to treat the little patient. The diagnosis of a stomachache is, at times, difficult to make. It is advisable to call a physician, in the meantime eliciting as much information from the child as possible so that an intelligent and coherent history may be at the physician's disposal when he arrives.

# The SURGERY DOOR

*For those who see the surgery door swing to,*
*Who wait and wonder what is happening,*
*And what the outcome when the time is through,*
*The moments pass on very tardy wing.*
*Each seems an age. Fear draws its pictures grim*
*In apprehensive minds, care-troubled long.*
*The surgeon—can they put their faith in him?*
*The helpers—can they fail? Can aught go wrong?*

*Footsteps are sounding just inside the door.*
*To heart and face a thousand pressures flare.*
*What will we hear in just a moment more?*
*Will it be hope, or will it be despair?*
*The shadows roll away. Joy sheds its light.*
*Sweet music is the sentence, "She's all right."*

**By Clarence Edwin Flynn**

# OUTDOOR LIBRARIES

## *for health, as pictured*

*By CORA L. KEAGLE*

HAVE YOU ever envied your young son his reading position when he stretched out on the rug, chin propped on elbows and heels waving in the air?

The advent of open-air libraries has made it possible for the whole family, figuratively at least, to kick up its collective heels. Children bent over desks for months of the school year find a new pleasure in books when they can read them sprawled at full length on a shady bit of lawn. Indoor workers relax at the noon hour over favorite books or magazines instead of whiling the time away in the smoke-laden air of cafes. Mothers living in yardless apartments bring the babies for sunbaths while they finish the story begun yesterday. The "No Smoking" sign is absent, and conversation is not tabu.

The outdoor library idea originated in Spain, where collections of books are placed in parks under the care of attendants. There the bookcases are of stone, which gives a thought of permanence. On one such case is engraved this inscription, "These books, which belong to every one, are placed in every one's care."

The mayor of Boston, inspired by the Spanish idea, in 1932 persuaded the park commissioners to have books and magazines for circulation on Boston Commons. This move was not sponsored by any library but was such a success that libraries all over the country became interested. From a modest beginning at Hyannis, on Cape Cod, the movement has spread west to California and south as far as Louisiana.

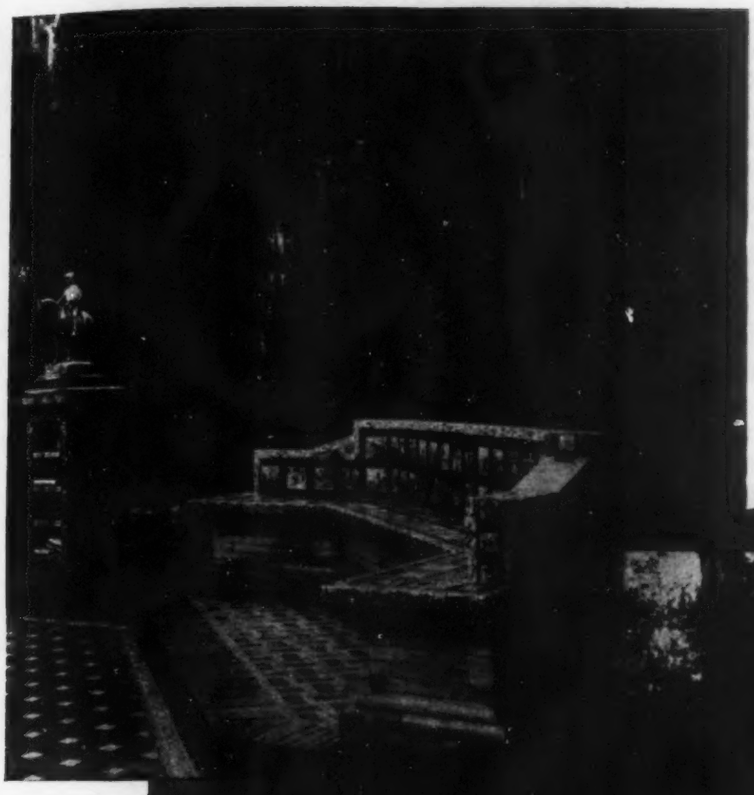
One of the best known is Bryant Park Open Air Library in New York. Let Miss Ruth Wellman describe it in an article she has written for the *Library Journal:*

> The leafy mall just back of the central building is a natural reading room. The simple library equipment and extra benches occupy the south end of the long, paved central terrace, edged with rows of sycamore trees and beds of ivy. Johann Wolfgang von Goethe looks down, somewhat puzzled by New Yorkers reading under trees. William Cullen Bryant, holding a book, presides over the scene with a benign, bronze gaze. It is a busy scene. At 10 o'clock the bright blue book stalls, the magazine rack and the librarian's table are wheeled into place, the blue umbrella is opened and the day begins.

THE BRYANT PARK OPEN AIR LIBRARY IN NEW YORK CITY IS ONE OF THE BEST KNOWN.

# OUTSIDE READING

***The Cervantes Library in Chapultepec Park in Mexico City is a replica of the Cervantes outdoor reading room in Seville, Spain. Lowest photo shows the Garden reading room in Los Angeles.***



The library at Montclair, N. J., first tried placing book racks along the sidewalks after the manner of the second-hand book stalls along the left bank of the Seine in Paris, but it was found that the light was too glaring. The librarian then opened a garden reading room on the lawn of the main building which, she writes, is ideal for the purpose. This lawn is shaded by hemlock trees and gay with flowers. The sides are enclosed by the walls of the Swedish Congregational and Unity churches, and this helps to dull the sounds from the street.

Skipping across to Illinois we find at Evanston a different type of open air library. Here no ground space was available, so the roof of a one-story addition was utilized for an upper deck reading room. Shaded with awnings like a real yacht, it overlooks gardens and trees instead of whitecapped waves. The enthusiastic librarian says in a recent letter:

> The deck is equipped with spring metal chairs. A special price to the library enabled us to purchase them at the price of ordinary chairs. This unusual comfort is greatly appreciated by the reading public.

In the far West, on the lawn of Central Library in Los Angeles, are book trucks and tables of magazines surrounded by gay umbrellas and benches. Here the public may inhale fresh air and absorb sunshine during a reading season which lasts from May to October.

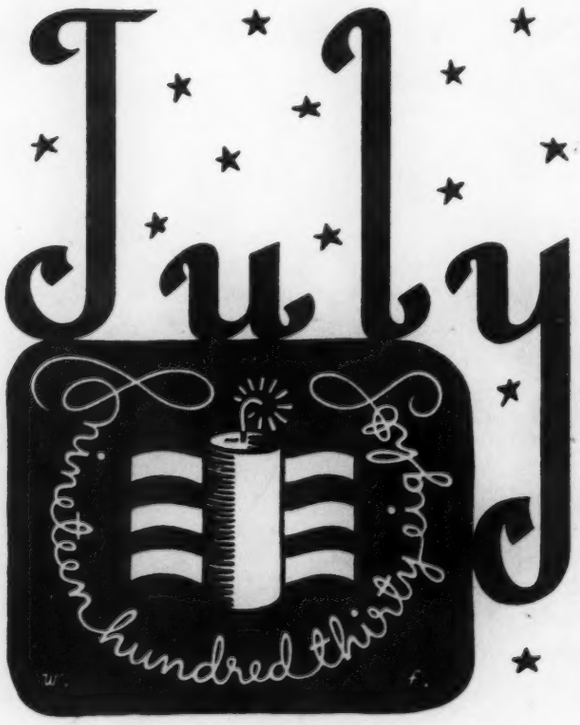
This garden proved so successful that another was opened down town in Pershing Square, where idle philosophers now have a chance to acquire new material for further arguments.

But for sheer beauty I choose that gem of Spanish art located in Chapultepec Park in Mexico City. Perhaps part of its charm is the beauty of its location and the approach. It is a replica of the Cervantes outdoor reading room in Seville, Spain.

Early one morning I set out to find it but as usual succeeded only in getting thoroughly lost. A little Spanish boy who spoke more of English than I of Spanish offered to guide me. As we followed winding paths, suddenly through a vista of lovely ahuehuete trees I saw the sunlight glinting on the spray from the fountain of Don Quixote in the center. We stood a long time watching it. I hesitated to leave this view for a close-up, but after all you can't stand in one place forever. As we came nearer we saw on the tiled floor the golden patterns made by the sun shining through the leaves of the ahuehuetes. Four seats, each composed of eighty-four picture tiles in soft blues and yellows, form a broken circle around the fountain. On two sides are high tiled bookcases, one surmounted by a bronze figurine of Don Quixote, the other by a similar one of Sancho Panza. These tiles depict episodes in the life and story of Don Quixote. With the invigorating air, the pattern of light and shade and the tinkle of the fountain for music, it is, indeed, a pleasant place to read and dream of castles in the land which inspired this lovely spot.

Over the entrance of one outdoor library I have seen this inscription, "Books Are Doors to Fairyland, Guides into Adventure, and Comrades in Learning." With the advent of outdoor reading rooms one might add, "and Pathways to Healthland."

---




# FORECAST for JULY

*"We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain Rights, that among these are Life, Liberty and the pursuit of Happiness"—*

*and that they can get the maximum of pleasure from these rights if they enjoy them in Good Health. Therefore we suggest that they observe the rules of health stated in the July* Hygeia *in the following articles:*

**First Aid on the Trail** *(Dr. Allen S. Johnson)*
**Health and Economy in Milk Care** *(Robert E. Neprud)*
**Cold Baths and a Cold Tombstone** *(Roy Temple House)*
**Food Facts and Fallacies** *(Dr. Russell M. Wilder)*
**No More Accidents!** *(Richard A. Learned)*
**Babies Shouldn't Die** *(Dr. F. O. Tonney)*
**A House for All the Family** *(Josephine Bessems)*

# OUR DAILY BREAD

APPROXIMATELY 10 billion loaves of baker's bread are now consumed annually by the people of the United States. If placed end to end, for no reason except to excite those who are statistically inclined, these loaves would go around the world at the equator some sixty times, forming a golden brown highway about 30 feet in width. Under the influence of the tropical sun this broad pavement would probably be well toasted.

Massive as are these figures for bread, even in the present era of big numbers, they are exceeded by data on some of our other common foods. There are available, for example, more than 13 billion quarts of market milk in this country every year and nearly 2 billion pounds of butter as well as some 3 billion dozens of eggs, 13 or more billion pounds of meat, and 12½ billion pounds of sugar.

Statisticians might enjoy computing the width of a world highway made of lumps of sugar, or the length and depth of a river of milk or the size of a mountain of meat, but consumers today are more interested in the nutritive values, the proper uses and the costs of these and other foods. They are interested because the dietary habits of the American people have been changing, with noteworthy increases in the consumption of fruits, vegetables and dairy products and decreases in the use of some of the foods that are chiefly energy producing. These changes have been due in part to lessened demands for hard physical labor over long hours and in part to better public appreciation of the newer knowledge of nutrition.

Good bread is, however, still the "staff of life," as Jonathan Swift called it in the seventeenth century, and cereal foods such as bread continue rightly to form the backbone of our national nutrition. These foods are necessary and proper components of the well balanced daily diet that is built primarily around the so-called protective foods (milk, eggs, fruits and green and yellow vegetables) because these energy-bearing foods are required in the diet in order that full value may be obtained from the protective foods. As the Bible says, man does not live by bread alone; but as a distinguished committee on nutrition of the League of Nations has recently added, neither can he live on butter without bread.

What, then, is the proper place of good bread in modern nutrition? The answer is readily apparent when consideration is given to the materials and methods employed by most modern bakers, whose bread has so largely replaced that formerly made in the home. The housewife still bakes some cake and pie, but for the last decade or more she has willingly left the making of bread to the expert, the baker.

Modern baker's bread is much more than flour and water. Wheat flour of good quality is, of course, its principal ingredient, but to this grain are added milk, yeast, malt, fat or shortening, salt and other valuable substances. Practically all white bread is now made with added milk solids, usually in the form of dried milk. The average loaf of white bread contains not less than 6 per cent milk solids, which not only add to its flavor and texture but contribute to it valuable nutritive substances such as minerals, proteins and certain vitamins. Some breads baked especially for use in school lunches now have 12 per cent or more milk solids.

A generation ago, bread making was merely an art, but today it is both an art and a science. Our mothers made up a batch of dough in the evening, using proportionately more flour and less of the milk and other ingredients, and left the mixture to ferment over night. In the morning the dough was kneaded, put in pans to rise and then baked in the oven for about an hour. It tasted good, because it was eaten fresh and well buttered by a horde of hungry children and hard-working husbands, but it was actually less nourishing than is the average loaf of the baker's bread of today.

The modern large bakery is more than a mere workshop. It is a spotlessly clean industrial kitchen, equipped with huge machinery and

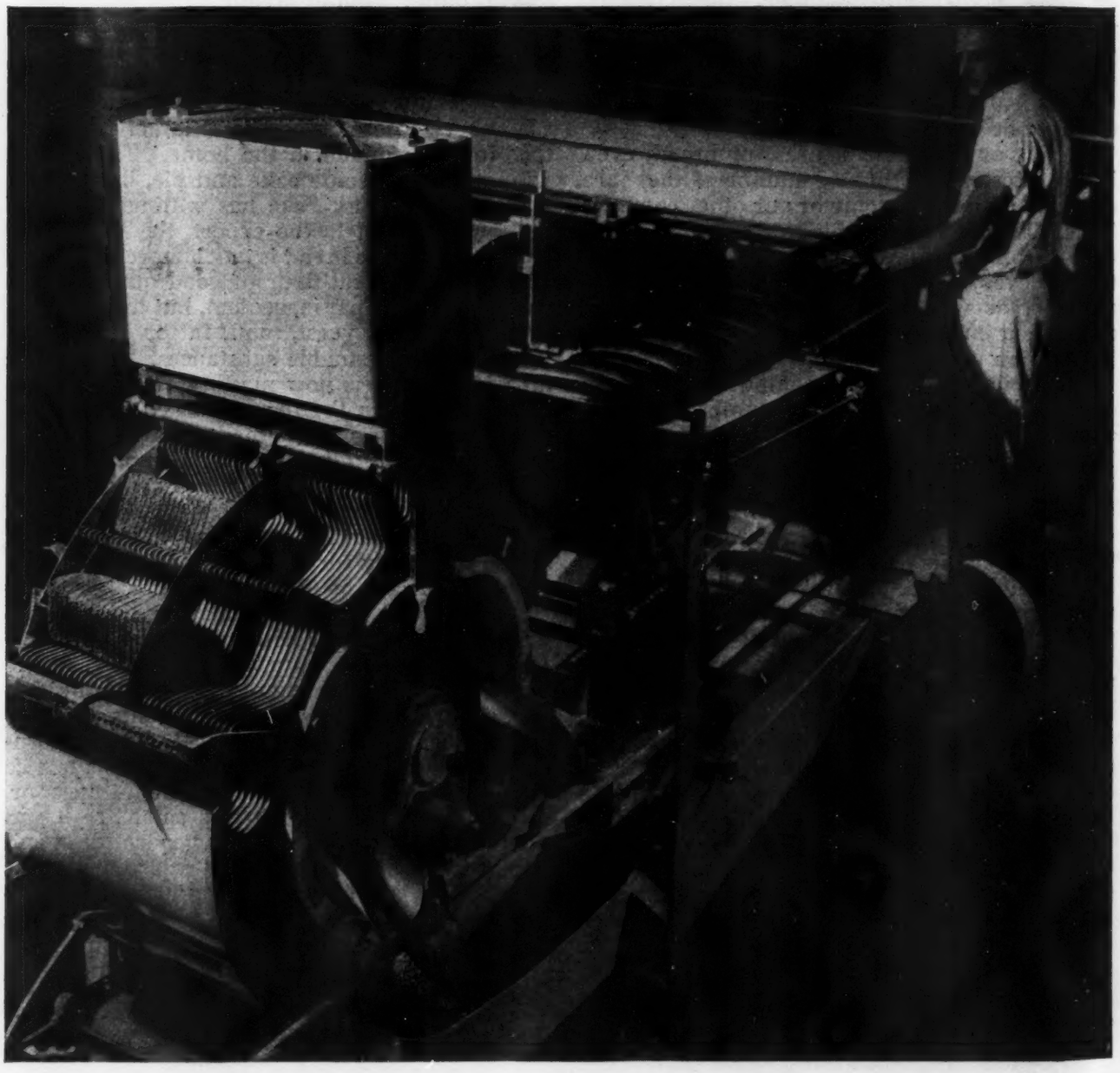
**By JAMES A. TOBEY**

operated with laboratory precision by experts who must be technicians as well as craftsmen. In the commercial baking process, wheat flours tested for high quality are properly mixed with carefully measured quantities of the other ingredients to form a dough, which is allowed to ferment for about six hours. During this period, in which temperature and humidity are rigidly controlled, the yeast causes the dough to rise by releasing carbon dioxide gas, some of which escapes and some of which is trapped in the elastic mass of gluten.

The dough is divided and rounded into shape, given a short rest period, then molded and placed in the pans. Before baking, the pans of dough are kept for an hour or so in a steam box or proofing room to permit of further rising. They then go to the ovens, where the bread is baked for approximately an hour at a maximum temperature of about 450 F. There are many types of ovens, some of which are huge affairs, through which the bread travels on a slowly moving hearth from one end to the other, gathering heat as it goes along and emerging well baked with a uniformly golden-hued crust.

After coming from the oven, the bread must, of course, be cooled for several hours before it is wrapped by machine. Prior to wrapping, most breads are automatically sliced. It may take half a day, or from eleven to twelve hours, to make one loaf of bread, counting the time from the mixing of the dough to the wrapping of the finished product. At every step, scrupulous cleanliness is necessary in order to insure the quality product that is the baker's pride.

THE MODERN LARGE BAKERY IS A SPOTLESSLY CLEAN INDUSTRIAL KITCHEN, EQUIPPED WITH HUGE MACHINERY AND OPERATED WITH LABORATORY PRECISION BY MEN WHO MUST BE TECHNICIANS AS WELL AS CRAFTSMEN.



Good bread is valuable in human nutrition chiefly as a source of economical and readily digestible food energy. About half of the loaf is comprised of excellent carbohydrate, and another 2 per cent is fat. One ordinary slice of white bread gives about 65 calories, or units of food energy. This is sufficient energy to enable a man to walk a mile.

But bread is more than an energy food, for it also contains tissue-building proteins of excellent quality, derived from both the wheat and the added milk, and it has important minerals, such as phosphorus, calcium and iron, and small amounts of the growth-promoting vitamins A, $B_1$ and G. About 38 per cent of bread is water, which is a somewhat lower proportion of moisture than occurs in most foods. The constituents of bread are furthermore in the best ratio for the nutritive efficiency of the average person.

Scientists have pointed out that bread and cereals represent only 17 per cent of the total food bill of this country but that they furnish 40 per cent of the energy value, 25 per cent of the protein value and 18 per cent of the phosphorus value. "For these reasons," says Dr. Morris Fishbein in his book "Your Diet and Your Health," "dietary authorities are convinced that the average diet should be built around bread and milk."

There are many misconceptions about bread, especially white bread, and its place in the diet. Formerly it was thought that whole wheat and graham breads were far superior to white bread made from highly refined wheat flour. It is quite true that breads prepared from the coarser and darker grains are somewhat more nourishing, but the general use of milk solids in white bread has significantly narrowed the nutritional gap between the two types of bread. About the only dietary advantages that can now be claimed for whole wheat bread are its higher content of iron and of vitamin $B_1$, both of which are also easily obtainable in ample amounts from many other common foods.

The whole wheat products contain considerable roughage in the form of indigestible fiber. Whether or not this is desirable depends on the personal needs of the individual consumer. White bread is more completely assimilated by the body, so that practically full value is obtained from its nutrients. It is about 98 per cent digestible and thus has virtually no waste.

Another common delusion about bread is that it is fattening. As a matter of fact, no single food is fattening when it is part of a well balanced diet. It is the total of all the foods consumed that may cause overweight, provided that the total customarily exceeds the energy needs of the body. If a person needs 2,500 calories a day, it is obvious that the approximately 150 calories supplied by one slice of bread (65 calories) and butter (85 calories), or the 450 calories furnished by three slices of well buttered bread, or the 900 calories from six slices are all far below the allowable food limit for a day and actually represent only a fraction of the daily food requirements.

Bread has, in fact, been suggested as a desirable part of a sensible reducing diet, since it furnishes carbohydrates that are necessary for the most effective burning of body fat. A reducing diet that recently has been having great vogue and considerable success in England consists of five meals a day made up of bread and butter, with a glass of milk in the morning and evening, and tea or tomato juice with the other three meals. Such a diet lacks but few of the essentials of a well balanced diet. Reducing should, of course, preferably be undertaken only in accordance with the directions of the family physician; and in the interests of good health, reducing must usually be a gradual process.

As a proper part of an adequate diet, white bread is beneficial rather than harmful to the teeth, the strength of which can best be promoted when the daily diet is abundantly supplied with calcium and vitamins, especially vitamins C and D. Crusts, toast and hard rolls are, in fact, particularly advantageous to well fed teeth, since they furnish desirable exercise for these organs.

White bread certainly will not cause any baleful condition, as some quacks and food fakers have asserted. The Council on Foods of the American Medical Association has recorded its acceptance of the reasonable statement that white bread is a wholesome, nutritious food; that it has a rightful place in the normal diet, and that its avoidance for fear of any harmful consequences or the fear that it is the cause of any diseased condition, when properly used in the normal diet, is entirely without scientific foundation.

Good bread has nourished the human race from time immemorial. It is the oldest of all prepared foods and the one that has been most widely used. Bread was made in ancient Egypt some 4,000 years ago, and it is frequently mentioned in the Bible, along with numerous references to bakers and millers. "Give me five loaves of bread in mine hand," said David to Ahimelech, the priest (I Samuel, 21:3). And in the one-hundred-thirty-second psalm, David spoke of Zion, saying, "I will abundantly bless her provision: I will satisfy her poor with bread."

Bread is always satisfying. It is not a perfect food, but it is a fundamental food that occupies a prominent and legitimate place in the varied diet that is most conducive to buoyant health. No single food is perfect by the standard of modern nutrition, and only by a mixture of protective and sustaining foods, with their good companion, bread, can the daily diet offer well rounded and satisfactory nutrition.

Century Photo

# Vim, Vigor and Vegetables

By HARRIET MORGAN FYLER

EACH YEAR as summer comes around there is important news that somehow never manages to reach the headlines. It has to do with little peas, half formed in the pod; with lettuces waving their leaves above the soil, with lima beans, cauliflower and cabbage, all ripening on farms or in our own gardens for our tables.

In one sense, green vegetables are never news. Think of almost any member of the vegetable kingdom, and even in January you can step to the grocer and get it. Wherever in this land of many climates the sun shines with the warmth of summer, produce is raised for our consumption. Hurried by fast refrigerator freight, nothing stops the supply; even in winter when the weather is severe, the flow of fresh fruit and vegetables is not seriously interrupted.

From a dietetic point of view it is fortunate that we can always have green vegetables. They provide the necessary vitamins and minerals which promote health. A liberal supply of green vegetables in our daily meals is essential in all seasons.

Green vegetables are a rich source of vitamin A, but they are a bit shy about it, as they hide the yellow color of the carotene—primary vitamin A—in the green color of their leaves. Vitamin A is one of the vitamins that can be stored in the body at periods when one eats a great deal of it and then rendered available when it becomes less abundant. And in these days of summer vegetables, it will cost little but will mean much to you.

Charles Anhofer, once chef for Delmonico's, wrote in 1894 that every good menu must contain the foods in their season. Forty years, during which those foods have gradually become staples the year around, have dulled the edge of that advice. But to the person who knows food and the value of flavor as an incentive to appetite and as an addition to the pleasures of dining, it is even more pertinent now. The opportunity to obtain vegetables of unwonted freshness and succulence is here, and we can get the maximum enjoyment out of food that will never be so good again—until another summer comes around.

Though vegetables brought from a distance may be satisfactory as vitamin carriers, the housewife who wants flavor seeks green stuff from her own garden or from farms within motoring distance of the city. One knows what happens to flowers that are refrigerated too long. They do not wilt, but the color and fragrance die out. There is as much difference between the flavor of a tomato ripened on a vine and one picked and then packed in a cold freight car as there is between the scent of a

rose fresh from the garden and that of the dispirited bud stiffened with wire and sold in city railroad terminals.

If you are one of the fortunate and can get new peas, lima beans, cauliflower and cabbage from your own vegetable garden, relinquish them for the table while they are still young and tender. This is not easy to do, for one may have dreams of giant pods and heads of cauliflower with blue ribbons pinned on them. But if one is to get the most epicurean delight the vegetables must be picked while they are young and tender. As the vegetables grow older the sugar in them changes to cellulose, thus causing the vegetable to be fibrous. Little lettuce, no bigger than rose leaves, is a delicacy one does not forget. Baby cauliflower just large enough to serve one person is an extravagant but delicious dish.

If one is a city dweller whose agricultural pursuits consist merely in tending an ivy plant on a wall bracket, one is almost as well off as to fare at this time of the year. Vegetables come into the city almost literally with dew on them. Whether or not the vegetables purchased from the market are fresh depends somewhat on our knowledge of judging quality.

Fresh pea pods are full and sappy when bruised with the finger nail. When the pods start drying out, the pea seeds are fibrous and flavorless. Fresh lima bean pods are dark green, brittle and well filled. Peas and lima beans should be purchased in the pods, as flavor is always sacrificed when those already shelled are purchased, and in addition the purchaser pays for the labor of shelling. Shelled lima beans and peas are extremely perishable and should be cooked immediately. When buying cabbage, select a solid, firm head that is heavy for its size. If the outer leaves are separated from the base, the cabbage is likely to be strong flavored and fibrous. Choose a firm head of cauliflower, snowy white and free from discolored spots. The flowerets should be tightly compact, as looseness indicates overmaturity and strong flavor. A yellow color also indicates strong flavor. The leaves surrounding the head should be bright green and fresh.

It is one of the ironies of life that vegetables which have been produced with great labor, marketed with effort and bought with hard-earned money are often rendered flavorless and unappetizing by careless cooking. A kitchen may well stand or fall by its vegetable dishes, and cabbage and peas are genuine tests.

One of the most important aims in cooking a vegetable is to prepare an appetizing product of highest edible quality. Unless a vegetable looks appetizing and tastes good it is not readily eaten. Provided the vegetable is harvested at the proper time and stored at a suitable temperature, the most important factor influencing edible quality is the method of cooking.

Slow cooking and overcooking are always to be avoided. Fresh vegetables should be cooked in rapidly boiling salted water, which has been boiling several minutes to drive out the air. This reduces the oxidation of vitamin C to a minimum. To preserve the green color, green vegetables should be cooked with the lid off the kettle. Mild flavored vegetables like freshly shelled lima beans and peas should be cooked in barely enough boiling salted water to keep them from scorching. One-half cupful of water to two cupfuls of shelled peas or beans is usually sufficient. A pinch of sugar added to the cooking water helps the flavor. Stronger flavored vegetables like cauliflower and cabbage may be cooked in larger amounts of boiling salted water in an uncovered kettle.

Color and flavor are not the only factors influenced by improper cooking; the vegetable nutrients, minerals and vitamins, are affected also. Modern homemakers and those interested in food are aware that experiments show that from 30 to 50 per cent of the iron content of vegetables may be lost during cooking. Based on "adequate diets at low cost," at which level 40 per cent of the iron needed each day by an adult is supplied by vegetables, this means that nearly 20 per cent of the total iron in the diet may be lost by improper cooking. The magnesium, calcium and phosphorus content of

THE FLOWERETS OF THE CAULIFLOWER SHOULD BE TIGHTLY COMPACT, AS LOOSENESS INDICATES OVERMATURITY AND STRONG FLAVOR. THE LEAVES NEAR THE HEAD SHOULD BE FRESH AND GREEN.

cooked vegetables is less than that of fresh vegetables.

Recent studies on asparagus and peas conducted at the University of California show that the percentage of magnesium, calcium and phosphorus leached during boiling and steaming is dependent not only on the particular element but also on the amount of water coming in contact with and passing through the vegetable. Greater amounts of these elements were leached from the vegetables during boiling than during steaming.

The vitamin content of vegetables is also affected by cooking. Vitamin C is especially labile. During a standard cooking period about one half of the vitamin C is dissolved in the cooking water. If the vegetable is overcooked, more of the vitamin C is destroyed, and more has passed into the cooking water so that the cooked vegetable retains only a small proportion of its original vitamin C content.

For all these reasons, vegetables should be steamed or cooked in only a small amount of water, until the water is all absorbed and the vegetable is tender.

Really first-rate vegetables need little additional flavoring if properly cooked. Perhaps only one thing is essential—butter; one must be able to say, like the Dormouse in "Alice in Wonderland," "It was the best butter."

### Lima Beans in Cream

2 cupfuls freshly shelled lima beans
½ cupful boiling water
1 cupful cream
1 tablespoonful butter
½ teaspoonful salt
⅛ teaspoonful pepper

Cook the lima beans in the boiling salted water—just enough hot water so that it can be seen through the beans—until the water is all absorbed and the beans are tender. Add butter and cream; let boil up, and serve at once. This is also an excellent way of serving fresh peas.

### Scalloped Succotash

Combine 2 cupfuls freshly cooked lima beans and a number 2 size can of yellow corn kernels. Cover with whole milk. Season with butter, salt and pepper. Pour into buttered baking dish, cover with cracker crumbs, and bake about 20 minutes in a hot oven.

### Breaded Cauliflowerets

1 head of cauliflower
2 eggs
1½ cupfuls cracker crumbs

Wash cauliflower, break into flowerets, and cook in boiling salted water until almost tender. Drain, and let cool. When cool, dip each small piece in beaten egg and then in cracker crumbs. Fry in deep fat kettle or in a frying pan. Keep turning until all sides are a golden brown. Serve with a hot cream sauce to which cheese has been added.

### Sweet-Sour Cabbage Salad

Chop one medium-sized head of white cabbage very fine, and sprinkle with salt to taste. Now sprinkle with enough sugar so that it will taste sweet, and then add vinegar, little by little, until sour enough to taste good. Arrange the cabbage flat in a wide, rather shallow salad bowl or a deep platter. Now whip half a pint of whipping cream stiff, and add sugar to make it quite sweet. Then add vinegar, little by little, until it is sour enough to "match" the sourness of the cabbage. Pour the sweet-sour cream over the cabbage, but do not stir them together. This is a delicious salad.

---

# HEALTHGRAMS — *FROM ARTICLES IN THIS ISSUE*

¶Every practicing surgeon has met the requirements of the most exacting apprenticeship of any profession or calling. *See page 488*

¶Although man is a gregarious animal, he is a dangerous neighbor unless effective means are taken to render him safe company. *See page 521*

¶The parents of a handicapped child forget that due to his lack of experience he can never in any real sense miss what he has never enjoyed. *See page 512*

¶Good bread is valuable in human nutrition chiefly as a source of economical and readily digestible food energy. *See page 541*

¶Any physical discomfort detracts from happiness as well as from efficiency, even as the opposite condition conduces to both. *See page 531*

¶The physician who is at least partially familiar with the idea that in almost every disease the symptoms are the result of a total bodily and psychic reaction can detect a diagnosis better than the one who relies too much on purely objective data accumulated by tests. *See page 518*

¶In a multitude of ways, animals are indispensable for the prevention, diagnosis and treatment of disease and for the testing of foods, medicines and various medical and surgical materials. *See page 496*

# Stream Pollution

## THE DOCTOR'S ARMCHAIR STORIES: VII

*By Fred O. Tonney*

"HOW MANY eggs?" asked Mom, as Sonny and Dr. Smithies sat at breakfast in the farmhouse kitchen.

"Two for me," answered the doctor.

"Me, too, Mom," piped Sonny, with a sense of importance.

There was a lull, devoted to the breakfast cereal.

"What you been doing these days, Son?" queried the Doctor.

"Well, me and Elsie went fishing yesterday up Spring Creek in the canoe. But, shucks, there ain't no fishing up there any more. Why! We didn't even get a bite, not a single one, Dad. An' it smells up there—all along the creek, it does—like old garbage and soapsuds. And the water looks gray and slimy. It didn't *used* to be that way up Spring Creek, I know *that*, Dad."

The telephone bell suddenly jangled, and Mom ran to answer it, while the two of them ate on in silence.

"It's for you, Dad," she called.

The doctor wiped his lips with his napkin, got up and went to the parlor, while Sonny finished his cereal, drank his milk and started on the one too many eggs Mom had given him.

It was a long wait. Finally the doctor returned and sat down abstractedly.

Sonny continued to wait, with growing impatience. Finally: "Who was it, Dad?"

"Doc Williams, about that bloody flux outbreak over at Spring Valley. I sent him a specimen from Baby Wilson yesterday."

"What'd he say?"

"It's bacillary dysentery. Mighty bad business, if you ask me. About fifty cases out of a thousand people in the town—that's a pretty high rate, and a lot of them are kids, too!"

"Gee!" breathed Sonny. "But, Dad, what's this bacillus thing—what's it anyway?"

"It's the cause of a sort of bloody running off of the bowels that people die of sometimes, especially kids." He considered for a moment. "Doc Williams says most likely it comes from the drinking water."

"Where does Spring Valley get its water, Dad?"

"From Lake Marie, right near where Spring Creek empties in; been getting it there for years and never had any trouble before." He toyed with his eggs—but didn't eat.

Sonny waited, sensing more to come. At last: "Where's the canoe?" asked the doctor.

"In the creek down back of the house," answered the boy.

"Come on, Son, we're going there right now."

They rose from the table and threw down their napkins.

"Don't forget your rubbers," admonished Mom, as she kissed them good-by.

In the canoe, impelled steadily upstream, streaking along under the overhanging branches, Sonny spoke up: "But, Dad, Spring Valley's *downstream*."

"Sure, Son. We're not going to Spring Valley. It's the river goes there."

"Where we goin'?"

"To the towns upstream." He paused. "How far's it to Oakland?"

"Just beyond the turn, Dad."

The canoe shot forward and rounded the bend.

"Well, there's the sewer outlet of Oakland," remarked the doctor. "They've got a sewage treatment plant there. It oughtn't to be bad."

"Looks better to me than the water comin' from upstream." commented Sonny. "And do you *smell* something, Dad?"

The doctor's face was grim.

"Let's go on," he said.

Again the canoe pointed upstream.

"Where's the Cherryville sewer, Son?"

"Just a little ways ahead."

The Cherryville outlet again was clear, but from on upstream the odor reeked.

"It must be Exeter," opined the doctor. "Just over the line, in Bass County." Then he continued, "No wonder there isn't any fishing here, Son. The sewage kills 'em."

At the Exeter sewer outlet there was no longer any doubt. *Exeter* was the source of the foul odor and slimy discharge in Spring Creek.

"Head her in, Son."

The canoe grazed gently on the bank, and the two got out.

"Is there a way up here?" looking at the rocky ledges above.

"Yes, a path, right over here, Dad. It goes up to the square."

They climbed the winding path and came out on the main street of Exeter. A traffic officer in khaki trousers and a blue shirt lounged at the corner.

"Where's the City Hall?" asked the doctor.

"T'other side of the square, stranger. Right there at the tower."

They hustled around the square and into the City Hall.

A few moments later, in the mayor's office: "How long are we going to have to wait for you folks up here in Exeter to put in a sewage treatment plant and stop polluting Spring Creek for us down below?" demanded Dr. Smithies of Mayor Tim O'Malley.

The mayor smiled ingratiatingly, offered Smithies a cigar—and evaded. "Well, Smithies, you know times are hard now, and taxes aren't coming in as they used to." He glanced at the doctor's grim face, smiled again and proceeded, "But I'll tell you what! We'll start building a sewage treatment plant here just as soon as we can get the citizens to vote a new tax levy. How's that, Wilbur?"

"Not near enough, Tim," angrily. "You've got to do it *right away—pronto!*—no matter if you stop everything else you're doing here in this town!"

O'Malley stared, "Why what do you mean, Smithies?"

"I mean this: They've got an epidemic of bloody flux down in Spring Valley, and some of the kids are going to die, sure as shooting! It all comes from right here in Exeter, from your untreated sewage that goes into Spring Creek! That's what!"

"But see here, Wilbur, my friend, we didn't do anything!" argued Tim, aghast.

"You've done aplenty," shouted Smithies. "And you've got to stop this sewage pollution of Spring Creek, or you're going to pay for it!" And following this tirade the doctor stormed out of the office with Sonny trailing right behind.

Back down the path to the canoe they scurried; then a swift, silent passage homeward.

Arriving at the farm, the doctor, still flushed and angry, rushed to the garage, climbed hastily into the old flivver and stepped on the starter.

"Where you goin', Dad?" called Sonny.

"To see the governor," was the laconic reply.

Just then the telephone tinkled inside the house. Almost at once Mom called from the porch, "Telephone, Dad."

He stopped the car, got out and went indoors.

Presently he emerged again and climbed abstractedly into the seat.

"What was it, Dad?"

"The Wilson baby again over at Spring Valley. She's terribly sick. I'll have to go there first."

And then with a clackety rattle of fenders and a sputtering roar of the motor, he was off down the Spring Valley road.

It was a long and dreary day for Sonny—no fishing any more, no one around to play with, and Mom was busy with canning! "Gee, I wonder what Dad's doing now," he thought again and again, as the day dragged on.

But that evening, sitting with Dad in the old armchair before the fire, Sonny had his reward. Lying back comfortably while the logs crackled and the flames flickered, he asked, "Where'd you go first today, Dad?"

"To see Baby Wilson, of course. That was the most important. And say! Was she a sick kid! Never saw a sicker one. We worked and worked over her with hot packs to her little tummy even after I gave her a hypo. But finally she went off to sleep." He paused reflectively. "Then I got another specimen of her bowel discharge that her Ma had saved and took it over to the state laboratory at Uniontown."

"Um hum."

"And while Doc Williams was fussing with it, I went on up stairs to see the governor about this Exeter business."

"What'd he say, Dad?"

"He didn't say much at first—just listened mostly—and I was talking *plenty*, being still pretty hot under the collar from what we saw in the canoe this morning. Pretty soon he sat back and pushed a buzzer alongside his desk. A girl came in."

" 'Get Dr. Elston,' he said.

" 'But he's over at the state convention in the auditorium,' the girl replied, kind of shocked.

" 'Never mind! *Get* him!' snaps the governor."

"Who's Dr. Elston?" inquired Sonny.

"He's state health director. Don't you remember when he and his wife were here to dinner last Thanksgiving?"

"Oh, sure," recalled Sonny.

"Well, pretty soon Doc Elston came in, and then we all three sat down in a huddle on this epidemic of bloody flux over at Spring Valley.

"Doc Elston stuck with me on every point. He 'phoned his office right away and sent a couple of inspectors to Exeter to check up and told 'em to call him right back as soon as they had anything."

"Gee! That was quick work, Dad." Then, thoughtfully, "I remember Dr. Elston, now; he looked like he'd work quick that way. An' he sure did!"

"Well, Son, just wait till you hear what the governor did. Say!"

"What, Dad?" Sonny was all excited.

"Well, he reached over and called up Tim O'Malley in Exeter; and he says, 'Tim, I want you to come down here as quick as you can for a conference.' says he.

"There was an argument. It looked like Tim had a political picnic on and a speech to make. But Governor Worth says, 'Never mind the picnic. Forget it! You get down here right away, Tim. We're waiting for you.' "

"An' *did* he, Dad?"

"Sure. In about half an hour, in came Tim O'Malley, puffing and panting and sweating and looking like the world had come to and end." The doctor chuckled. "When he saw me his jaw dropped, and he let out a groan. 'So it's *you*, Doc?' he mumbled. I couldn't help but snicker, he looked so flabbergasted.

"Just then the telephone rang on the governor's desk. It was Doc Elston's inspectors up at Exeter, and they'd found a case of bloody flux in the hotel there. It was in a kid from upstate somewheres, and they'd taken a specimen down to Doc Williams at the laboratory.

"Course that explained it all—a case of bloody flux in the hotel at Exeter; the sewage from the hotel, with the germs in it, draining into Spring Creek without any treatment, and then going on downstream—that way getting into Spring Valley's drinking water from Lake Marie. So there we were with a water epidemic on our hands." *(Continued on page 563)*

# STUTTERING (Continued from page 526)

possible by psychotherapeutic measures to relieve the condition. A boy of 6 years, crossing the street one morning on his way to school, was suddenly frightened by the sound of an automobile horn only 1 or 2 feet away. The boy ran to the curb and fell. When he was picked up he could not talk. He merely stared at the crowd that promptly gathered. Careful examination did not reveal any injury beyond a slight bruise on the knees. He remained speechless for about six hours. Several days later he began to stutter. It was possible by reeducation and reconditioning, starting with various whistles and horns until the quality and pitch of the offending horn was reached, to restore normal speech. The process was slow and tedious, but the result was well worth the effort.

A child of 5 years was frightened by the sudden approach of a barking police dog. For two days, Doris remained practically motionless except for an occasional terrifying scream. When she finally began to talk, stuttering was severe. Treatment was started promptly and consisted of an attempt to overcome her canine fears. Starting with toy animals she went through many months playing with kittens, rabbits and finally small puppies. After a prolonged period of reeducation, she was brought face to face with a police dog who resembled fairly closely the offending animal. Though she no longer stutters she still becomes terrified by the proximity of a barking dog.

Donald presents one of the most pathetic instances of stuttering traceable to emotional shock. He was the only child of well educated parents, who appeared the very example of happiness and respectability. He loved his parents and was particularly attached to his father. On a bright day in June when high school commencement was held, the elder Donald complained of being ill and begged to be excused from attending his son's graduation. When the boy was ready to leave with his mother, the father congratulated him, shook hands and said, "Son, I have been waiting for this event many years." Laughingly, he added, "See that you do right by Mom." Commencement over, Mother suggested that the boy run home while she attended to some shopping. Donald, all enthusiasm, diploma in hand, rushed in, exclaiming, "There she is, Dad!" But Dad did not reply.

As nearly as the boy can recall subsequent events, he looked for his father everywhere but could not find him until he went to the basement. From here on, speaking becomes a series of muscle twitchings and facial contortions. In the end, one summarizes that he found his father suspended by a rope, tied to a rafter. It is seven years since his father committed suicide. Donald's stuttering under certain conditions is as bad now as it was when it first started about a month after the tragedy.

No comprehensive discussion of stuttering can properly omit an evaluation of the "stutterer personality." Speech being the vehicle for social communication one can readily see how such forced isolation of the afflicted individual may bring about a distorted emotional attitude. The stutterer has a peculiar disposition. He feels inferior. He is suspicious and oversensitive and practically always exaggerates his speech defect. Furthermore, every unpleasant experience is interpreted as a direct result of stuttering. Donald, for example, has an excellent position and, thanks to family connections, he enjoys economic security. He is a handsome young man, and except for an occasional incidence of stress his speech is quite acceptable. Yet he considers himself a most unworthy person and behaves accordingly. He fears association with respectable groups. Consequently he seeks the company of the less desirable, and what he calls the less "particular," elements of society. He drinks to excess because when he is drunk he does not stutter.

In a similar way you cannot convince Margaret that the young man who invited her to a movie had no idea that the short comedy strip would contain a stutterer dialogue. "And you should have heard him laugh!" she complains. "He had it all planned!"

Stuttering in the young child is a serious defect. It exposes the youngster early to emotional insults which are certain to mar his outlook on life by lowering his self esteem. Fortunately the habit lends itself to correction. The time element is undoubtedly the greatest factor in the successful treatment. Obviously prevention is the best cure. Proper understanding of the development of speech, the elimination of unnecessary hysterical outbreaks on the part of parents in their relationship to the growing child will go a long way toward prevention of stuttering and other speech defects. Immediate attention to such emotional shocks as are known to provoke stuttering not only will serve as a precaution against defective vocalization but will indeed act as a preventive to

(Continued on page 571)

"DARLING, SPEAK TO RICHARD."

Reprinted by special permission of the Saturday Evening Post, copyright 1937 by the Curtis Publishing Company.

# SCHOOL and HEALTH

Conducted by J. MACE ANDRESS, Ph.D.
67 Clyde Street Newtonville, Mass.

## BUILDING THE HEALTH CURRICULUM IN THE HIGH SCHOOL: X

IT WAS the first meeting of the faculty of the Queenstown High School after it had reached the decision that a health council was needed to help organize and administer the health program of the school. As usual the principal, Mr. Richards, was in the chair.

MR. RICHARDS: At our last meeting we reached an important conclusion; namely, that we needed a permanent committee of the faculty to guide our health work if we were to get results. The principal was asked to appoint this committee, or health council, and report to the faculty at its next meeting.

After careful consideration I have appointed the following: Miss Phillips, Dr. Vanderhoof, Miss Walker, Mr. Strong and Mr. Schultz. Mrs. Wilkinson, on the invitation of the faculty, was asked to serve on the council ex officio. She is the president of the local parent-teacher association. Your principal has also accepted membership ex officio. The council has already met twice and is prepared to lead this meeting. I am asking Miss Phillips, the chairman and our visiting teacher, to take the chair.

MISS PHILLIPS: Our newly appointed council has begun its work. We are all enthusiastic about the opportunities we have to make our health program more effective.

One of the first questions raised was whether students entering the high school have had sufficient training in scientific hygiene. The council formulated a number of questions which it believed such pupils ought to answer satisfactorily. As a result it was found that most pupils were ignorant of many of the fundamental elementary facts about anatomy, physiology and hygiene.

MISS MARSHALL: I thought that we were emphasizing the point of view that health was a way of living rather than the mastery of facts. Should not hygienic habits and attitudes rather than knowledge be the basis of our new program?

MISS PHILLIPS: I am sure we should all agree with you, but probably all of us believe that the acquisition of sound information about health may be very helpful. If children know some of the reasons why a well balanced diet is desirable they will be more likely to form appropriate habits. For example, one teacher with the aid of her pupils performed an experiment on rats. A group of three rats was fed on a diet in which candy and coffee predominated; another group of the same number was given a balanced diet in which there was plenty of milk and green vegetables. Graphs were made of the weight of each rat. It was found that those rats on the balanced diet gained faster in weight and looked more healthy than those subsisting largely on candy and coffee. This experiment was so convincing that many children on their own initiative formed better food habits.

MISS MARSHALL: That is an excellent way of teaching. I heartily approve of such teaching because it arouses interest and leads to conviction. Many of the facts of anatomy and physiology, however, seem to me to be useless. Often such facts arouse a distaste for the study and application of health principles.

MR. STRONG: It has been my observation that a tactful and enthusiastic teacher may make the study of anatomy and physiology attractive. The experimental method may be used, and the instruction may be centered around the health needs of the students. Physiology and anatomy should always be carefully organized so that the pupils get a better insight into the way the body works and the way it should be cared for. They should always be tied up with practical health problems.

MR. RICHARDS: What did the council decide to recommend?

MISS PHILLIPS: We have not yet finished our investigation, but at this point it would seem advisable to invite the principals of the elementary schools to a conference to plan with us. It was suggested that much health instruction could be introduced into general science without in any way affecting adversely its function as general science.

MISS ROGERS: Is there a need of more courses dealing specifically with health in the high school?

MISS PHILLIPS: We seem to have about enough courses; but something may be done to make them more popular as electives with the students. There should be more pupils electing courses in nutrition and first aid. We shall probably recommend that all students be required to take a course in personal and community hygiene at some point in their course.

Whether or not this course may be offered, it is still possible for every subject taught to contribute its bit to health education. This problem has engaged the attention of the faculty before, but it requires more detailed consideration. The council has asked Mr. Winchell of the department of social studies to tell about some of the activities in his field which may promote health education.

MR. WINCHELL: In our study of the social and civic life of Queenstown we are listing those institutions which are vital to our community. Among them are agencies which have to do with community health. These we are marking on a city map. These agencies are visited either by classes or by committees of the classes who report their observations. The health department, police department, fire department and city hospitals are among the agencies visited.

Last week a group of my students visited the health department to secure details about a standard milk ordinance which was being considered by the city. This group

---

*To Contributors:—The editor of the School and Health Department will be pleased to receive articles dealing with the actual solution of concrete and practical health education problems in the school. Contributions on general theory are not solicited. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

made a report to the entire class, after which a health officer was invited to the school to take part in a class discussion and to answer questions relating to the suggested ordinance. The health department has furnished a number of graphs, maps and pamphlets for the use of our classes. Next year we hope to find many other correlations between social studies and health.

MISS PHILLIPS: We do not ordinarily think of English having much to offer in the way of healthful living, but Miss McPhee, an enthusiastic teacher of English and an ardent nature lover, has a word to say.

MISS MCPHEE: Good health involves an appreciation and love for the outdoors. We help to cultivate these attitudes through the study of our great writers on nature such as John Burroughs, John Muir, Walt Whitman, David Thoreau, John Greenleaf Whittier and others. We aim to read prose and poetry on nature appropriate for the time of year. Pupils are encouraged to write original poems, essays and stories in which nature plays an important part, so the student will find pleasure in going out into the open air.

MISS PHILLIPS: This work of Miss McPhee is ably seconded by our art and biology departments, both of which encourage field trips.

If we had the time other instructors would be pleased to give reports. Eventually the council will canvass the work of every teacher in the school, both to receive and to offer suggestions so that we may have a more effective correlation between health and the various subjects of the curriculum.

At our next meeting we should like to consider with you the health of our teachers.

---

## BODY BUILDING AND REGULATING FOODS

### Vitamin D

ETHEL AUSTIN MARTIN
Director, Nutrition Service
National Dairy Council

*The fascinating story of the vitamins is continued in the following article by Mrs. Martin. She points out the importance of vitamin D in the diet and the instruction which should be offered at the various age levels in the school.*

A DISCUSSION of vitamin D logically follows that of vitamin A because these two vitamins are often associated in the same foods and at one time were thought to be identical. Vitamin D has long since been recognized as a separate factor, however, with distinct functions and with a variety of sources. The ways in which we obtain our vitamin D makes a fascinating story.

### Sources of Vitamin D

Vitamin D is not a dietary essential in quite the same way as other vitamins because its functions may be fulfilled by direct exposure of the body to sunlight, which enables it to make its own supply of vitamin D. Therefore the amount of vitamin D which should be included in the diet depends on the climate in which one lives, the season of the year, how much and what kind of clothing is worn and the mode of life.

*Ultraviolet rays.*—There is a "mother substance" of vitamin D in the skin which when exposed to the ultraviolet rays of the sun is changed into vitamin D and absorbed by the body. Thus if a person lives in the open in a sunny, warm climate, wears light clothing and has much of his skin exposed to the direct rays of the sun he absorbs considerable vitamin D. On the other hand the same person spending most of his time indoors or wearing heavy clothing is deprived of this property. Very little ultraviolet radiation from natural sources is available to persons living in a dark, moist atmosphere, under conditions which exist in a northern city in winter. "Sun" lamps have been devised as a substitute for the sun in producing ultraviolet rays for use in the northern winters. Not all so-called "sun" lamps supply significant amounts of ultraviolet radiation. On the other hand, some are too powerful for use except by physicians. Information concerning "sun" lamps suitable for home or school use may be obtained from the office of the Council on Physical Therapy of the American Medical Association.

*Natural food sources.*—Apart from cod and other fish liver oils egg yolk and butter fat are the best natural food sources of vitamin D, although vitamin D does not occur in large amounts even in these two foods. The concentration of vitamin D in egg yolk is greater than that in butter fat, but the total amount of vitamin D obtained through the latter is usually greater because it is consumed not only in milk and butter but in cream, ice cream and all whole milk products.

During the growth period, particularly during the early months and years, special means must be taken to obtain sufficient vitamin D. This additional amount can be obtained in three chief ways: (1) fish liver oils and concentrates of vitamin D, (2) natural foods, the vitamin D content of which has been increased in some manner, and (3) direct sunlight or ultraviolet lamp treatments (not discussed here).

*Fish liver oils and concentrates of vitamin D.*—Babies are often supplied with vitamin D in fish liver oils such as cod liver oil, halibut liver oil or their concentrates. Or they may be given a still more highly concentrated form of vitamin D prepared by irradiating the "mother substance" of the vitamin as it occurs in nature. Such sources of vitamin D are administered to the child daily under the direction of a physician.

Within recent years the discovery that the natural vitamin D content of foods can be increased in various ways has tended to simplify to some extent the problem of administering vitamin D. In other words, the use of vitamin D-enriched foods makes it possible to supply this vitamin automatically, thus omitting one step in the feeding program and thereby insuring a more regular and continuous intake of it.

*Vitamin D-enriched foods.*—A number of vitamin D-enriched foods are on the market. Of these foods, milk alone is accepted as suitable for such enrichment by the Council on Foods of the American Medical Association. The attitude of the Council toward vitamin D milk may best be summarized in its own words:

> Of all the common foods available, milk is most suitable as a carrier of added vitamin D. Vitamin D is concerned with the utilization of calcium and phosphorus of which milk is an excellent source. The Council has recently made the decision that for the present milk is the only common food which will be considered for acceptance when fortified with vitamin D.

The vitamin D content of milk is increased in three chief ways: (1) by adding vitamin D concentrates

to milk; (2) by irradiating the milk directly, and (3) by feeding the cows irradiated yeast. Actual studies with babies show that vitamin D in milk is an effective way of supplying this vitamin. The Council on Foods points out that vitamin D milk may have an even greater usefulness for the older child than for the infant because the former is not so apt to receive vitamin D from a special source such as cod liver oil.

### Why Do We Need Vitamin D?

*General health.*—Like all the other vitamins, vitamin D contributes to good general physical condition and helps to promote buoyant health. It is also essential for good growth and aids in the development and maintenance of strong teeth. In the February article of this series, vitamin D was mentioned as a guiding factor in properly depositing the minerals calcium and phosphorus in the bones and teeth. It is in the fulfilment of this function that vitamin D is most needed by the body.

*Teeth.*—Vitamin D is indispensable in aiding the bony tissues to take up the calcium and phosphorus brought them by the blood. Lack of vitamin D in the formative stage of tooth development therefore results in malformation of the teeth, a condition believed to invite decay. Although not the only nutritional factor concerned, a suitable balance of vitamin D, calcium and phosphorus is essential for adequate tooth building and repair at all times.

*Bones.*—The same mineral-vitamin D balance is needed for satisfactory bone formation as for teeth. And this is why vitamin D must be particularly stressed for the infant whose bones are growing fast and for the pregnant mother before the baby is born. When the baby's bones are soft and improperly formed the resulting condition is called rickets. Rickets continues to be more common in this country than it should be now that we know how to prevent it.

### How Much Vitamin D Do We Need?

As the foregoing discussion indicates, many factors, such as age, climate and mode of life, affect the amount of vitamin D one should take. The amount and source of vitamin D for babies should always be in the hands of the physician. It is generally believed that children and adults alike profit by the use of vitamin D-enriched foods or concentrates during the winter months in the North. Young children probably need a regular source of vitamin D the year round with the possible exception of midsummer, if their bodies are exposed to a considerable amount of direct sunlight daily. Women during pregnancy and lactation should have a supplementary source of vitamin D daily.

A great excess of vitamin D is conceded to be harmful. However it is not believed that the liberal use even of the concentrates usually constitutes a serious excess. The amount of vitamin D in fortified foods is moderate, and there appears to be little or no danger of getting too much vitamin D from this source at the present time.

### Application to the Classroom

The February article of this series made reference to the importance of good bony tissue in the building of a strong healthy body, with particular emphasis on teeth as a factor in excellent nutrition. The essential points of this lesson should be reviewed at this time.

In the lower grades a unit on play may be introduced with emphasis on outdoor play in the sunshine every day. Children will be interested in the fact that the sun is their friend, actually contributes to their health and happiness. If several children in the room are taking cod liver oil, mention may be made of its beneficial effects. Often a word of this sort will encourage its regular use at home.

Older children will be interested in learning how vitamin D acts as a factor in helping to build a strong bony framework and how this framework contributes to a straight, well built body. A unit on posture may be an interesting outgrowth of a discussion on this point. Students will be motivated in improving their food habits by realizing that an adequate diet including sufficient vitamin D and minerals, particularly calcium and phosphorus, is basically necessary for good posture and that good posture affects the general physical and mental well being of the individual. Thus one supports and aids the other.

In the high school the unit on posture may be extended in any one of several directions depending on the interests of the group. Home economics classes may consider clothing and shoes in relation to posture. Physical education classes may study the relation of exercise to posture—such as proper activity, desirable amount of exercise without fatigue and the need for real recreation, as in play, as well as formal exercises. All groups should become acquainted with the relation of good nutrition to good posture, the place of vitamin D in good nutrition and the various ways in which vitamin D is available to all.

### References


New Developments in the Field of Vitamin D Milk by W. E. Krauss and R. M. Bethke. Reprint from Bimonthly Bulletin of the Ohio Agricultural Experiment Station, Vol. XXII, No. 184 (January-February) 1937.

Your Carriage Madam! A guide to good posture, by Janet Lane. New York: John Wiley and Sons, 1934.

Posture Exercises. U. S. Dept. of Labor, Children's Bureau, Publication No. 165. Reprinted 1937.


---

## A PROJECT FOR DEVELOPING THE RADIO PROGRAM "YOUR HEALTH"


HELEN MUNRO
Physical Education Instructor
Bryant School
SUPERIOR, WIS.


*The broadcasts "Your Health" by the American Medical Association are being cordially received by schools in all parts of the United States. Their effectiveness must be measured not merely by the number of pupils who listen in but by the way in which teachers make use of these presentations. The author of the following article outlines a plan now being carried on; it may be suggestive to other schools.*

SINCE the advent of the American Medical Association radio program "Your Health," much enthusiastic response has been made to the broadcasts by the students of our schools and the public in general. Sponsored by the citywide committee on health, the detailed program of the broadcast is published in the newspaper every Tuesday evening. In several of the public schools where radios are available the students are given the opportunity to listen to the broadcast.

*(Continued on page 558)*

*TO AMERICA'S SCHOOLS*

# YOUR HEALTH!

## WHERE TO DIAL

| RED NETWORK | |
|---|---|
| *WEAF | New York |
| WNAC | Boston |
| WTIC | Hartford |
| *WJAR | Providence |
| WTAG | Worcester |
| *WCSH | Portland, Me. |
| KYW | Philadelphia |
| *WDEL | Wilmington |
| *WFBR | Baltimore |
| *WRC | Washington |
| WGY | Schenectady |
| *WBEN | Buffalo |
| WCAE | Pittsburgh |
| *WTAM | Cleveland |
| *WWJ | Detroit |
| WSAI | Cincinnati |
| WIRE | Indianapolis |
| *WMAQ | Chicago |
| KSD | St. Louis |
| *KSTP | Minn.-St. Paul |
| *WHO | Des Moines |
| WOW | Omaha |
| *WDAF | Kansas City |
| WLW | Cincinnati |
| WFEA | Manchester |
| *WSAN | Allentown |
| WORK | York |
| WMBG | Richmond |
| WCOL | Columbus |
| *WGL | Fort Wayne |
| WOOD | Grand Rapids |
| *WBOW | Terre Haute |
| *WGBF | Evansville |
| *WEBC | Duluth-Super'r |
| KSOO | Sioux Falls |
| KANS | Wichita |
| *WTAR | Norfolk |
| *WPTF | Raleigh |
| *WSOC | Charlotte |
| *WFBC | Greenville |
| *WWNC | Asheville |
| *WIS | Columbia |
| *WCSC | Charleston |
| WAVE | Louisville |
| WSM | Nashville |
| WMC | Memphis |
| WSB | Atlanta |
| *WAPI | Birmingham |
| *WJDX | Jackson |
| *WSMB | New Orleans |
| WROL | Knoxville |
| *WJAX | Jacksonville |
| *WFLA-WSUN | Tampa |
| *WIOD | Miami |
| *KGBX | Springfield, Mo. |
| KVOO | Tulsa |
| *WKY | Oklahoma City |
| KGNC | Amarillo |
| WFAA | Dallas |
| WBAP | Fort Worth |
| *KTBS | Shreveport |
| *KTHS | Hot Springs |
| KARK | Little Rock |
| KPRC | Houston |
| WOAI | San Antonio |
| KFDM | Beaumont |
| KRIS | Corpus Christi |
| KRGV | Weslaco |
| WTMJ | Milwaukee |
| WIBA | Madison |
| WDAY | Fargo |
| *KFYR | Bismarck |
| KOA | Denver |
| KDYL | Salt Lake City |
| *KPO | San Francisco |
| *KFI | Los Angeles |
| KGW | Portland, Ore. |
| *KOMO | Seattle |
| KHQ | Spokane |
| *KTAR | Phoenix |
| KOB | Albuquerque |
| KFBK | Sacramento |
| KWG | Stockton |
| *KMJ | Fresno |
| KERN | Bakersfield |
| KIDO | Boise |
| KGIR | Butte |
| KGHL | Billings |
| *CFCF | Montreal |

* Reported broadcasting the programs.

THIS VIEW FROM THE CONTROL ROOM SHOWS A PORTION OF THE PROGRAM BEING ENACTED. THE "CONTROL MAN" REGULATES VOLUME OF THE VOICES; THE PRODUCER, LEFT, GIVES THE CUES.

WHEN THE SCRIPT CALLS FOR A FIRE, THE "SOUND EFFECTS MAN" RUSTLES THIS TWISTED MASS OF "CELLOPHANE."

## SOUND EFFECTS in RADIO

AMONG the interesting features of the radio program as it goes on the air are what might be called the trimmings, which give the program its special features of interest.

First, of course, is the orchestra, which plays the opening theme, sets the tempo of the broadcast with its musical interludes and serves on the air the same purpose that a curtain serves in the theater, separating scene from scene and act from act. Our orchestra adds greatly to the effectiveness of our productions.

Next are the sound effects. Visitors who have never seen sound effects before are always fascinated by the doors which lead nowhere but make realistic opening and closing sounds; by the sheet of galvanized iron hung in a frame of gas pipes, which when struck gives the rolling sound of thunder, and by the silk covered cylinder revolving against strings to make the howling of the wind. Some sounds are best made by the actual sounds themselves as, for example, the breaking of dishes, the firing of a pistol, the crying of a baby, footsteps approaching or receding, doors opening and closing, dishes and silver rattling, and so on. Many so-called background sounds, such as birds in the trees, noise of city streets, the rustle and whisper of an audience, the rush of a passing train and the roar of an airplane engine, are made from the actual sounds recorded and then played back from disk records through an amplifying machine and mixed at the control board to go out on the air as a background for the voices of the actors. Some of the sound effects are made by clever mimics as, for example, different kinds of dogs barking, a parrot screeching and screaming his meaningless phrases or, in some instances, crying babies. The sound

of running water is made by an actual faucet from which real water runs into a sink. On the same unit is also a showerbath spray, which is directed into the same sink and which gives the sound of the showerbath. When the sound of the human heart was broadcast on the "Your Health" program, it took two sound effects engineers and a doctor the better part of three days to overcome all the technical difficulties that interfered with the broadcasting of clear heart sounds. The actual time consumed by the heart sounds on the air hardly exceeded forty seconds, but it made an interesting program feature, well worth doing.

***Beginning with the program of June 1, 1938, a change in schedule occurs due to conflicts on the network.*** **YOUR HEALTH** ***will be heard from*** **1:30 to 2:00 p. m., eastern daylight saving time,** ***June 1, 8 and 15.***

The technical side of radio is too complex to discuss here. In the Chicago production center of the National Broadcasting Company there are ten studios, several of which may be originating program features at the same time. Two of these program features may be going on the air over Chicago stations, while the rest may be simply going on to the Red or Blue networks to be broadcast elsewhere and not in Chicago at all. Other studios are in use for rehearsals or for auditions; that is, trial performances of contemplated programs.

Whenever you hear a good program on the air, you may be sure that it has been preceded by weeks of thought, planning and preparation, plus hours of rehearsing before it finally is "aired" for your approval.

---

# HEALTH TEACHING HELPS BY RADIO

## DATES AND TOPICS OF WEEKLY BROADCASTS

## 1938

### USING HEALTH KNOWLEDGE

June 1—Vacation Plays and Misplays: making the vacation a real contribution to health and recreation.

June 8—Graduation—and Then What: a new phase of life begins at commencement, and health contributes to success.

June 15—What Medicine Offers for Health: flashes from the American Medical Association meeting at San Francisco, giving highlights of medical progress.

## SUGGESTIONS FOR TEACHERS

The following briefs of the ninth group of programs, together with the reading references and suggestions for things to do in connection with the programs, are intended as helps to teachers. The program itself is not intended to supplant health teaching, but to supplement it.

*June 1: Vacation Plays and Misplays.*—A vacation should be a period of mental and physical rest. Usually a change of scene and companions is recommended. Two pals or best friends may need to get away from each other, because even the best pal may pall. Your vacation should be a change from the routine of work, the routine of home and the routine of your usual type of recreation.

Before going on a vacation, take stock. Are you overweight? Then don't try to take off all the excess in one week. Too rapid reducing is likely to be paid for in terms of anemia, tuberculosis or nervous conditions. Is the heart normal? Can you stand a trip to the mountains or that overland hike for which you've waited so long? How about resistance to disease? Are you vaccinated against smallpox? Have you been protected against typhoid?

Imagine getting a toothache while guiding a pack horse "on a long and lonely meadow, forty miles away from home." Better see the dentist before you leave.

The equipment you need depends on where you are going. Snowshoes will be useless on the beach, and a swimming suit is hardly sufficient covering while hiking through virgin forests.

Having chosen your place for vacationing and having taken stock, learn something of the hazards that may come up. These vary somewhat, but all must be considered.

1. Diet: This may be easy in a hotel, on a boat or at a resort where meals are served. In a camp, where cooks may be amateurs, the safest rule is simple dishes, simply prepared, for appetites sharpened by new endeavor. "Don't overeat" is the warning sounded to all.

2. Water: Be sure the drinking water source is safe. If doubt exists, boil all drinking water. (Review March 2 program on water.)

3. Sun: The beach guard is tanned to a beautiful mahogany shade. He obtained that tan in many weeks of slow exposure. You may have only a two weeks vacation and therefore may want to hurry the process. It cannot be done. Sunburn is painful and just as dangerous as burns from any other source. Expose your body gradually to the sun, until a protective tan has been fairly well distributed over the body. Then, gradually, more and more sun can be taken safely without burning. Sunstroke is another hazard with which the vacationer must reckon.

On a hot day at noon, it is best to let quiet repose take precedence over vigorous endeavor. Do your vigorous playing during early morning or late afternoon hours. Wear a hat or helmet, or stay in the shade.

4. Swimming: Death by accidental drowning is still a common occurrence. Too frequently the vacationer feels that he is an excellent swimmer and that nothing will bother him. Overestimating your ability is foolish. Simple rules for swimmers are:

(a) Swim only where there is a lifeguard.

(b) Bathe only in your depth. The best swimmers get cramps.

(c) Wait to bathe two hours or more after eating.

(d) Bathe in daylight only or in lighted pools or beaches, and always with a companion.

(e) Enter the water with your hands at your sides and never above your head.

(f) Inner tubes or water wings are not safe where the water is deeper than up to your chin.

(g) You are endowed with common sense. Use it!

5. Hiking: By this we mean the older idea of going on a hike where the feet do the work, and not the thumb. Well fitting, thick-soled shoes are necessary. Many hikers prefer high tops, while others prefer using puttees of leather or canvas. Either is recommended. These are an excellent protection against bruising by underbrush as well as against snakebite.

Snakebite is one of the possible hazards that should be kept in mind, but it is not as great a hazard as one is frequently led to believe. For the most part, snakes seek to escape and to avoid human beings. The hiker may accidentally step on a snake and may in return be attacked. The highest that the snake will strike is usually at a point several inches below the knee. For this reason the hikers prefer boots or puttees. Even the long trousers of a hiker are excellent protection. A greater danger of snakebite occurs in those individuals who put their hands and arms into the vegetation and underbrush without having previously made certain that no snakes are hidden. Then a bite from a snake may be received on the hand or arm. In such an instance, if the bite was made by a poisonous snake it is best to apply a tourniquet above the bite, and then with a razor blade or sharp knife lay open completely the wound made by the serpent. The hiker should have a suction apparatus in his equipment; this should be used as directed.

6. Plants: The vacationer should also know something about the various plants that he is likely to meet. To pick these for a bouquet may be intriguing, but if such leaves belong to the poison ivy family, the danger far outweighs the beauty. Whenever exposure to poison ivy or poison oak may have taken place it is wise to use a simple precaution as soon as possible. This consists in soaping the whole body with a heavy lather of any good soap, rinsing, and repeating the process. If the oil, which is the irritating element, can be washed away by this means in time, irritation will be prevented or minimized. Don't eat unfamiliar, though beautiful, berries.

7. Playgrounds: The vacationer who feels that "home is the best summer resort" also has hazards which he may face at any time. Playground accidents are a common occurrence. Stone bruises, as well as broken bones, must be considered. Cuts and simple lacerations caused by a fall or when "sliding in to home plate" need attention. If the lacerations are mild, simply washing them with soap and water may be sufficient. In the case of a broken bone, a physician should be called. When a bone is broken, amateur help may be the worst possible help. It is best to keep the injured person quiet at the place where the accident occurred, keeping him warm if necessary, and then call for expert aid.

### REFERENCES FOR THE TEACHER


AMERICAN RED CROSS FIRST AID TEXT-BOOK by the American Red Cross. Revised. Cloth. Price, $1. Pp. 256. Philadelphia: P. Blakiston's Sons & Co., 1937.

LIFE SAVING AND WATER SAFETY by the American Red Cross. Paper. Price, 60 cents. Pp. 267. Philadelphia: P. Blakiston's Sons & Co., 1937.

EVERYDAY FIRST AID by Walter F. Cobb. Cloth. Price, $1.50. Pp. 269. New York: D. Appleton-Century Company, 1937.


### New Series

*There will be another series of YOUR HEALTH programs, in cooperation with the National Broadcasting Company, during the fall and winter of 1938-39. They will be planned especially for America's schools. They will be based on the same program outlines as the series just closed, but the dramatized programs on the air will be entirely new. Keep your program outlines for next year. A revised and improved workbook will be ready before the programs go on the air in the fall. It will be published by the Johnson Publishing Company, Richmond, Va.*

### SUGGESTED PROJECTS

1. Become acquainted with the Schafer prone pressure method of resuscitation and practice it on your classmates. Merely knowing the method is not enough. Practice is necessary to be of any use when an accident arises.

2. What constitutes a simple menu for camp? Outline one day's meals for a camp located (a) on the shores of an inland lake and (b) on a mountain.

3. Should whisky be given for snakebite? (According to Dr. Lee D. Cady, in HYGEIA, The Health Magazine [Snakes in the Service of Science, September 1936, p. 784], "spirituous liquors are not the best antidote for snakebites. The chief purpose of this method is to render the snakebitten person more or less indifferent to his predicament.")

---

*June 8: Graduation—and Then What?*—With graduation from one school, a certain phase of formal education ends. It may be followed by more formal schooling, or it may not; but for the individual who loves to learn, there is no graduation from the curiosity which constantly adds to the store of knowledge which that person possesses. Formal health teaching may, but need not, end with formal education. Means to keep up to date are at hand. Indeed, it is imperative to keep up to date, for knowledge advances.

The means by which an individual can keep up to date after leaving school include the following:

1. The newspapers are perhaps the reading matter most commonly, cheaply and readily available to every one. Newspapers carry a tremendous amount of excellent health information and some that is not so good. Discrimination should be made between the good and the bad by consulting the family doctor. In the newspapers we find:

(a) News stories of what is going on in the world of science. These often need checking up, because a new development may not be as significant as it may seem at first, or it may have been given out prematurely, or it may have been erroneously reported. However, the national press services are now extremely careful about correct reporting of scientific news.

(b) News stories about the current prevalence of epidemic disease locally or nationally; these are useful to travelers and to every one who wishes to use sensible means of prevention.

(c) Feature stories about interesting slants on the treatment and prevention of disease.

(d) Health columns written by reputable physicians and some written by unqualified persons. The family doctor can quickly inform you which is which.

2. The radio is almost a universal medium these days. Over the radio can be had many health features, especially the following:

(a) Programs like this one, sponsored by organized medicine; that is, your family doctor multiplied by 100,000 plus, and numerous local programs by county and state medical societies, also representing your family doctor. Naturally you can depend on these programs.

(b) Programs by official health departments, city or state, often in cooperation with organized medicine.

(c) Programs by organizations of citizens and physicians, known as voluntary health agencies, devoted usually to a particular object, such as the campaign against tuberculosis, cancer or the social diseases, or the preservation of eyesight or hearing.

(d) Programs touching on health, by organizations interested in social welfare, such as the National Congress of Parents and Teachers and similar groups.

3. Magazines publishing health features:

(a) Purely health magazines.

(b) General magazines publishing health features along with stories and other material. The family physician can soon tell which is a reliable health magazine or what article in a general magazine is to be relied on.

4. Books. The mere fact that a considerable amount of language has been published in the form of a book does not make it correct. There are good health books and bad ones. The reputable health magazines and some other magazines, as well as many newspapers, publish reviews of health books. The judgment of medical reviewers is safer in this field than that of lay reviewers unacquainted with the complex fields of medicine and health. When in doubt, the family doctor is the court of last resort.

5. Speakers appearing in the community. Some of these are reputable authorities; some are well meaning but nonetheless harmful faddists and fakers; some are deliberate racketeers. The way to

check up on a speaker is to find out who he is and whom he represents. The local medical society will be able to find out about him if no local doctor is acquainted with his reputation.

Advertising, contrary to popular belief, contains much good, sound health advice and information as well as much of the other sort. Honest advertising is a real service to the consumer of health products, publications and services, telling where he can find them and what they cost. The family physician will readily be able to tell, or to find out from the American Medical Association, whether a given product offered with health claims is to be depended on.

Medical progress is continuous and sometimes startling. It is often difficult to decide whether a given piece of new information is authentic or merely sensational. The following tests will help:

(a) Is it announced by a reputable scientist?

(b) Is it announced conservatively?

(c) Is it announced boastfully? If so, be skeptical.

(d) Is it announced secretly, with a chance for you only to get it on a promotion scheme? If so, look out for it.

(e) Is its announcement coupled with sensational attacks on some reputable profession or agency? If so, be cautious.

(f) Is it announced as the exclusive property of some individual? If so, investigate.

(g) Is it offered "as your last chance?" If so, you probably will not miss much if you refuse it.

Maintenance of health requires keeping up to date with progress in medicine but without growing introspective about health. Health is not the most important thing in life; great lives have been lived without health. Health is not wealth, nor is wealth health, as some glib slogans have promised us. Health is a useful aid to success in life; it is an asset which should not be thrown away. Yet he who lives for health alone may lose his life even while he lives.

### REFERENCES FOR THE TEACHER


WHY WORRY? by George Lincoln Walton, M.D., Second edition. Price, $1.75. Philadelphia: J. B. Lippincott Company, 1919.

PERSONAL HYGIENE APPLIED by Jesse Feiring Williams, M.D. Fifth edition revised. Price, $2.25. Philadelphia: W. B. Saunders Company, 1934.

THE HUMAN MIND by Karl A. Menninger, M.D. Star Books Edition. Price, $1. New York: Garden City Publishing Company, 1933.


### SUGGESTED PROJECTS

1. Find ten health articles in all kinds of recent magazines. Check each of them on the following points:

(a) Who is the author, and what authority has he for such writing?

(b) How does the information given check against your reference books?

2. Do the same thing with ten health books from the public library.

3. Do the same thing with ten radio programs on health broadcasts this week.

---

*June 15: What Medicine Offers for Health.*—This program is difficult to brief in advance, because its details will depend on the papers and the exhibits shown at the annual scientific assembly and scientific exhibit of the American Medical Association, which will be held June 13-17 at San Francisco. It may be definitely stated, however, that the following points will be illustrated by the program topics as selected from the convention program:

1. The medical profession in the United States, meeting in its annual scientific assembly and exhibit, brings together the latest advances in American and foreign medical research.

2. Progressive as the medical profession is in following the most recent trends of research study with keen interest, it remains sufficiently conservative to withhold acceptance from unproved or insufficiently tried proposals.

3. The American Medical Association, through its elected representatives from the several states, is a democratic body representative

*(Continued on page 568)*

# SCHOOL AND HEALTH (Continued from page 553)

In our school we are carrying out the following plan.

The girls of the eighth grade physical education class sponsor the project. Each girl has the "Your Health Pupils' Workbook," which she uses as a guide to listening. At the close of the broadcasts the girls are given the opportunity to ask questions on any part of the program they do not understand, and a general discussion follows. They are then prepared to answer the questions in their workbook.

We have organized a follow-up program during which each girl is responsible for a chart entitled or grouped according to the program outlined in the "Your Health Workbook." For example, one chart is entitled "Contagious Diseases," others "Preventing Future Diseases," "Public Health," "Health Education," "Mothers and Children" and "Using Health Knowledge." The charts are placed in the other classrooms of the school, providing those who do not listen an opportunity to learn about the broadcasts. There are selected from the health class eight girls who act as radio announcers, and one girl goes to each room and summarizes the material that was broadcast. She thus relays to her assigned grade the important points she has learned from the health program. The children in the classroom then fill out the chart under her supervision. On the "Contagious Disease" chart, as illustrated, the causes, symptoms, spread, prevention, treatment and quarantine measures for each disease are recorded. On other charts the points listed are chosen according to the material or type of chart.

In the meantime, other girls from the health class are making plans for staging the play "Sneezes and Sniffles," which was sent to us through the courtesy of HYGEIA. A cast has been selected, and it is to be presented for an assembly program. Still others in the class look up outside references. The state health bulletin, the city health reports and the health books suggested in the workbook have all provided valuable material for oral reports in class. An added interest in our civic affairs has been noted. Much of the material obtained shows how our city compares with others in number of cases of contagious diseases, control of contagion, public health service, water supply and sewage disposal. Of special interest was the discussion about our water supply since we have the advantage of being adjacent to Lake Superior.

This program, we believe, will act as a supplement to the broadcasts and help to keep the pupils actively interested in the business of health. Because of the interesting way in which the programs are presented on the air, a new interest has been aroused and, we hope, will carry over to the pupils' daily health practice.

---

## THE NURSERY SCHOOL: WHAT IS IT? WHAT ARE ITS PROBLEMS?

NATALIE HASKINS BLUMENTHAL

*This is the first of a series of articles on the nursery school by an expert in the teaching of little children. She has studied at various educational institutions and is a graduate of Teacher's College, Columbia University. Mrs. Blumenthal has had practical experience as a kindergarten and nursery school teacher in various cities. She has also served as an instructor in nursery school procedures at Brown University and several teacher training institutions. During 1935-36 she was Assistant Specialist, Emergency Nursery Schools, Washington, D. C. In this introductory article we see the nursery school in its evolution and the emergence of its hygienic problems. Teachers of older children will be interested in the principles of teaching applied in the training of young children.*

THE nursery school is one of the most recent developments in the field of education. Despite the fact that at present there are more than 2,500 of these schools in operation each year in the United States, the general public as a whole is still relatively unfamiliar with the term "nursery school." To many persons the term suggests a school for nurses, to others it connotes a welfare institution for the care of underprivileged children or children of working mothers. It is true that nursery schools occasionally receive orders for shrubs and trees in their daily mail! As a matter of fact the term nursery school is probably not the most descriptive one that might have been selected for this modern educational venture.

The nursery school is essentially an institution for the guidance of children younger than regular school age. From the very moment of its inception in America its function has been an educational one, stressing the paramount importance of the first years of life and the need for intelligent adult guidance of early learnings. American welfare institutions, such as day nurseries, have been interested from the start in the educational approach of the nursery school program; and within the past few years in many welfare institutions the trained teacher has replaced the untrained attendant in an effort to supplement their program of physical child care with a program providing improved social, emotional and mental development for the children in addition to the physical benefits. Perhaps a glance at the historical development of the nursery school in this country will give a better understanding of how it has reached its present status.

Prior to the World War there were no nursery schools in America. In Europe various centers for the care of young children had been established as welfare measures to care for the children of mill workers in crowded industrial areas. Through better health conditions in the form of nourishing food, play in the open air and adequate rest, better health was obtained for large

YOUR HEALTH
CONTAGIOUS DISEASES

| Disease | Cause | Symptoms | How Spread | Prevention | Treatment | Quarantine |
|---|---|---|---|---|---|---|
| 1. Scarlet fever | | | | | | |
| 2. Measles | | | | | | |
| 3. Whooping cough | | | | | | |
| 4. Smallpox | | | | | | |
| 5. Diphtheria | | | | | | |
| 6. Infantile paralysis | | | | | | |

numbers of impoverished children. Through the pioneering efforts of Miss Grace Owen and Miss Margaret MacMillan, English nursery schools gained attention throughout the world.

About the time of the war various sociologic factors in this country contributed to an awakening of interest in nursery schools in America. The influx of families to urban areas where living conditions were crowded and play areas for children were limited was one factor. American women began to take an active part in business and industry, thus creating a need for substitute care for children during working hours, and this constituted a second factor. In addition to these two factors, physicians and psychologists were about this time becoming tremendously impressed with the importance that the early years of life seemed to have on later development. They began to realize that good adult health was definitely dependent on good child health and that such things as adult attitudes toward life in general could be traced back to impressions gained in early childhood. Therefore workers in the fields of medicine and psychology were tremendously interested in establishing some means for intensive study of child growth during the earliest years, for previous to this time practically no research had been done in the field of child development.

Under the impetus of all these combined factors in American life the beginnings of the preschool movement in this country were made.

In 1917 the Bureau of Educational Experiments was opened in New York City by Harriett Johnson, Caroline Pratt and Lucy Sprague Mitchell, and the following year a laboratory for the scientific study of preschool children was established there. In 1921 a trained English nursery school teacher joined the staff of the newly established Merrill Palmer School of Home Making in Detroit. In 1922 Miss Abigail Eliot of Boston went to England and after study with Miss Margaret MacMillan returned to begin her pioneer work at Ruggles Street in Boston. The Institute of Child Development opened in 1924 at Columbia University, New York City, and about the same time centers were established at the University of Iowa, University of Chicago, Yale University and the University of Toronto in Canada. Thus began the era of scientific study of young children, and the nursery schools established in these early research centers have remained through all these years the leading centers of nursery school education in this country.

In 1924 a list compiled showed twenty-eight nursery schools located in eleven different states. A survey (1928-29) listed 117 nursery schools, and in 1931 a directory compiled by the United States Office of Education showed 203 nursery schools in the United States. The largest growth in the number of nursery schools in this country came, however, from a totally unexpected source when, in October 1933, Mr. Harry Hopkins, Federal Relief Administrator, authorized the establishment of nursery schools for children of the unemployed as one of the educational relief projects under the FERA. This is undoubtedly the first time in history that a national government has recognized the importance of the needs of young children to the country as a whole, and has established a nationwide program for their benefit. While the very nature of the project gave it a welfare aspect, at no time has the educational emphasis of the nursery school program been lost. A group of the outstanding national leaders in the field of early childhood education became members of the National Advisory Committee on Emergency Nursery Schools. The specialist in charge of the program has at all times been a prominent educator in the nursery school field. Since 1934 Dr. Grace Langdon, formerly at the Child Development Institute, Columbia University, has been in this position.

It is interesting to note how the combined interest and efforts of persons in many phases of professional life were correlated in the emergency nursery school program. Teachers were selected from the relief rolls or from among low income groups. In most cases these teachers had had no nursery school training but, through the cooperation of teachers' colleges and universities all over the United States, intensive periods of training were given, the better to fit the teachers for their task. Health care was given in the emergency nursery school through volunteer services of physicians in local communities, who gave physical examinations and such services as toxin-antitoxin and vaccinations to the children. Nursing service for the nursery schools was used in those communities where existing agencies were sufficiently able to give it. In most cases, however, unemployed nurses were employed as regular members of the nursery school staff and not only gave daily inspections in the nursery school but did health work among the families as well. Cooks and cleaning women were also employed from the relief rolls to give service in the nursery schools.

In each of these emergency schools the cooperation of local school authorities had to be secured before the school was started, and the community itself supplied space for the project as well as heat and light. At times, much of the food and equipment was also supplied through local cooperation. In this way the active interest and support of local citizens, added to the services supplied by government funds, secured a program of real benefit to a large group of underprivileged children. Since 1934 nearly 75,000 children have been enrolled each year in approximately 2,000 different community schools. What the actual benefits to individual children have been cannot be underestimated. The influence which this widespread educational program may have on the future of preschool education in this country cannot be foretold.

As is true of any field of endeavor, it was not to be expected that the nursery school would restrict itself to the research type of center in which it was first established. Through the large numbers of scientific studies carried on in these centers, workers in the professional fields do well as mothers, and teachers have available today a large body of scientific knowledge for use in the guidance of young children. Largely as a result of this available knowledge the nursery school idea has spread rapidly and adapted itself to many other types of situations. Professional women desired a place where their children might be cared for during their business hours; mothers living in small apartments in large cities were in need of a place for their children to run and play in safety; mothers of only children realized their children needed companionship, and so in large cities many private nursery schools have been organized for the specific purpose

*(Continued on page 573)*

# New Books on Health

## YOUR DIET AND YOUR HEALTH

By Morris Fishbein, M.D. Cloth. Price, $2.50. Pp. 298. Illustrated. New York: McGraw-Hill Book Company, Inc., 1937.

IN HIS latest volume on health, Dr. Morris Fishbein, editor of HYGEIA and *The Journal* of the American Medical Association, is evidently addressing the layman, but his book is admirably adapted to the need of students and teachers of hygiene. It is comprehensive in its scope, covering the whole field of nutrition so far as personal hygiene is concerned. The problem of diet is presented concretely in twenty-six chapters under such simple and practical headings as Bread, Meat, Fish, Fats and Water. Unlike most popular books that seek to gain interest by many anecdotes and personal experiences at the expense of valuable information, each paragraph and chapter is crammed with worthwhile facts about the diet and health. One marvels at the author's grasp of his subject and his ability to marshal facts.

High school teachers and pupils and grade teachers will welcome this popular and yet scientific treatment of one of the most interesting problems of health.

J. MACE ANDRESS.

## A TEXTBOOK OF GYMNASTICS

By K. A. Knudsen. Translated by F. Braae Hansen. Cloth. Price, $3. Pp. 364. Illustrated. Philadelphia: P. Blakiston's Son & Co., Inc., 1937.

THE ideal teacher of physical exercises, according to the author of this book, who was formerly chief inspector of physical education to the Danish board of education, must have a natural aptitude for teaching; must master the practice of his subject; must have a thorough knowledge of the theory of his subject; must understand the healthy body as the physician understands the ailing body, and must have an artist's eye for bodily beauty in positions and movements. He is like a sculptor of the living body.

Form-giving gymnastics, which are found in the Ling system only, are part of the equipment by which the teacher of physical education accomplishes the task of harmonious molding and developing of the human form. The aim of this book is to "describe, explain and give reasons for the form-giving exercises, to arouse and strengthen the teachers' interest in them and to widen their knowledge as regards these exercises."

The first, or general, part of the book is devoted to a discussion of teaching plans and methods, the gymnasium and apparatus, and the terminology of gymnastics.

The second part deals with minutely detailed descriptions of exercises, such as order exercises, leg, arm, neck, abdominal, dorsal and breathing exercises.

The second part of the book is profusely illustrated, and special attention is given to diagrammatic and photographic presentations of correct and incorrect posture. The first part of the book could have been greatly improved by the inclusion of more material of this type and by subdivision of the material into short chapters. With such treatment the material presented would have gained in emphasis and reader appeal.

LEOLA J. HARRIS.

[NOTE.—Books reviewed or mentioned in this section, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

## AN INTRODUCTION TO THE SOCIAL STUDIES

By Joseph K. Hart, Ph.D. Cloth. Price, $2. Pp. 201. New York: The Macmillan Company, 1937.

SOCIETY begins in groups where "there is little room . . . for what we call thinking, because thinking implies change." Here, custom strengthened by emotion protects the group. Communities arise out of groups, and these may be nations, cities or a wide variety of social and political organizations. With the breakup of the group, we are introduced into a changing world where "the whole history of the race is a history of invention and discovery." The change which follows inventions gives rise to social disorganization and reorganization in new forms. This condition carries with it a multitude of social problems. The whole objective of the book is to postulate these problems in such a way as to arouse interest and encourage thinking and the search for solutions.

Changes take place in institutions which are based on custom and tradition and are defended by emotions and prejudice. The problems of change must be worked out by our minds. "We study because we have problems. . . . The greatest of all our social problems today" is that "our minds are behind our times." While "we are still really patterned to the older age, we find ourselves living in a new age."

In a democracy it is necessary for all of us to work on these problems, because "democracy seems to be the only sort of social order that can freely accept a completely inclusive program of social health in which all shall share." The solution of problems requires the application of the scientific method, which "requires the development of a permanently active type of mind."

The person who is looking for solutions and hates to think will be disappointed in this book; sometimes he may be angered because some things are stated as problems which he thought were forever settled.

A. M. SIMONS.

## BACTERIOLOGY OF SPECIFIC COMMUNICABLE DISEASES

Edited by M. S. Marshall. Paper. Pp. 141. Department of Public Health, City and County of San Francisco, 1937.

THE intention of the committee which prepared this manual was to correlate the activities of the laboratory with other public health work. Emphasis is placed not only on the advantages of laboratory procedures under certain conditions but also on the shortcomings and things that cannot be expected of the laboratory.

Fifty-five diseases of bacterial origin are discussed, with brief paragraphs on the gathering and shipment of the specimens, the laboratory procedures most suitable, and what may be expected in the way of a report. Copious footnotes deal with the preparation of stains and culture mediums for use in particular instances. Additional pages are devoted to the examination of shellfish, milk, water, ice cream, butter, food products and beverages.

The manual contains a wealth of information and should find an indispensable place on the desk of the laboratory worker, the epidemiologist and the physician in general practice. It is unfortunate that on one of the final pages there is recommended a commercial disinfectant that has been promoted in a blatant and objectionable manner.

THOMAS G. HULL, PH.D.

## THE PSYCHOLOGY OF ADJUSTMENT

By Laurance Frederick Shaffer, Ph.D. Price, $3. Pp. 600. Illustrated. Boston: Houghton Mifflin Company, 1936.

THE author of this excellent textbook in psychology was strongly motivated by the failure of most courses in this field to meet the needs of their students. Too often they discuss various theories of psychologic investigation and consider in detail the physiology and anatomy of the nervous system but contribute little or nothing to the solution of life's immediate problems. Little wonder then that courses in college psychology have become boresome and sterile.

Sensitive to the needs for a new kind of textbook, Dr. Shaffer has prepared a book which will contribute to an understanding of the student's own life problems and those of other people. It deals with an application of psychology which should have universal appeal, for "every one has to live and adjust." The author has resorted to none of the tricks of the writer who tries to be popular. It is not easy reading, but it is scientific in its approach and definite in its positive suggestions. This is a book which every teacher would do well to read carefully. It should help him to make better classroom adjustments and to guide boys and girls in wholesome personality growth.

J. M. A.

## PRIMITIVE AND PIONEER SPORTS

By Bernard S. Mason. Cloth. Price, $2.50. Pp. 342. Illustrated. New York: A. S. Barnes & Co., Inc., 1937.

THE reviewer approached this volume with some trepidation, which was not lessened by reading the preface in which the author says "Camp directors . . . should find these pages right down on the level of their interests." It would have been wise to omit that word "down."

The reader is almost certain to be more interested than he expects to be in the opening section on boomerangs. Apparently it is not true that an Australian boomerang will kill a kangaroo and return to the thrower, bringing the kangaroo along. The book gives a clear impression of what these mysterious weapons or toys will and will not do, describes with clear words and illustrations how to make many kinds and finally gives instructions about throwing them.

The clarity of description and illustration continues through a presentation of the virtues and technics of rope spinning and tricks, whip cracking and a woodsman's section on blowguns, darts, tomahawk (or axe) throwing and log rolling.

As in individuals the virtues of these sports seem very close to their faults. They are all individual and can therefore quite easily be followed as hobbies. By the same token they lack something on the social side of the recreation although groups of boys or girls with a common interest in boomerang or rope throwing would secure a social experience from it. Another advantage of the availability of such individual activities as these is that they are quite apt to appeal to the youngster who is not interested in baseball and other team games and can be followed by him even if he has some physical handicap which makes running difficult.

The book should be a real aid to camp counselors and directors and to directors of recreation in schools or parks because of the clearness of the presentation and because most of the sports have a natural appeal to children, particularly those of the male sex. The sections on boomerangs and rope throwing would appear to be the most valuable, and the impression is given that the author is most interested and most expert in these.

The printing is well done on dull finished paper, making the reading easy.

D. B. REED, M.D.

## A WORKBOOK IN HEALTH FOR HIGH SCHOOL GIRLS

By Gladys B. Gogle, M.S. Paper. Price, $1. Pp. 267. New York: A. S. Barnes & Co., Inc., 1937.

REALIZING that a desire to be attractive is a strong urge for most girls, but that they do not often associate attractiveness with good health and proper care of their bodies, the author has compiled this workbook, the central objective of which is to cause girls to think out reasons for keeping health habits, to discover why certain habits are considered "good for them."

The book covers the work for two years. It is arranged in units, so that assignments may be made to suit the needs of girls as they arise, or the class can follow the order of the book, which is to consider some of the most essential problems first.

The units considered in Book One, for the first year, include Taking an Inventory, Banishing Coughs and Sneezes, Checking Up on Your Luncheon Habits, Considering the Value of a Breakfast, Investigating the Bathing Habit, Keeping a Clean Food Tube, Guarding Against Ringworm and Warts, Making Posture an Asset to Personality, Knowing How High-School Girls Should Care for Their Teeth and Planning the Summer Vacation.

Book Two, for the second year, deals with the following units: Looking at Yourself Objectively, Reconsidering the Cold Problem, Planning for a Comfortable Menstrual Period, Understanding the Value of Well Chosen Food, Finding Out the Real Value of Sleep, Understanding the Importance of Safeguarding Eyes and Ears, Thinking Over the Clothes Problem, Competing with the Beauty Shop, Looking at Feet and the Shoes They Wear, Appreciating the Hygiene of Our Surroundings and Finding Out the Truth About Advertised Medicines.

Numerous check lists, score cards, questionnaires, problems and plans for investigations afford an excellent index of the pupil's understanding of the subject. A period chart is provided for each year. Suggestions for additional reading furnish useful references. The book is made up in convenient form. All pages have perforations and ring holes to facilitate filing in the student's notebook.

L. J. H.

# QUESTIONS and ANSWERS

### Immunity to Bee Stings

*To the Editor:*—There has been some controversy among certain bee keepers regarding the similarity of action on the human body of the bee sting and snakebite. Is there any information that would show the bee venom to differ from that of the rattlesnake? The partial immunity of bee keepers to bee stinging effects is an accepted fact among the bee men. Assuming it is true, would such "immunity" to bee stings be likely to afford any immunity to other poisons, such as rattler bites?

K. H., Wisconsin.

*Answer.*—While information concerning the exact chemical nature of snake venoms is scarce, knowledge of the composition of bee venom is even more sketchy. Most workers believe that snake venoms are proteotoxins. Attempts to separate snake venom into its various constituents have indicated that the euglobulin fraction contains the toxic element. Contrary to popular belief, bee venom contains little formic acid and owes little of its toxic action to that compound. The best chemical studies of bee venom are those of Flury. His researches indicate that the toxic action of bee venom results from a nitrogen-free substance. This appears either as a neutral compound poorly soluble in water, which is probably the anhydride of a cyclic acid, or as a water-soluble cyclic acid which shows the general properties of a saponin. The neutral form produces violent inflammation and irritation, while the acid form is actively hemolytic.

Immunity to snakebite may be produced by the injection of antivenin serums produced by injecting animals with venom of that particular species of snake. While immunity to the effects of bee sting is accepted by bee keepers as a practically established fact, experimental confirmation of this point is lacking. Dold was unable to develop any immunity in experimental animals.

It seems highly improbable that any immunity to bee venom would produce a corresponding immunity to rattler bites. If antivenin preparations produced from other species of poisonous snakes are of no value in producing immunity to rattler bites, it does not appear likely that any possible immunity to bee venom would offer protective effect against the rattlesnake. Definite experimental evidence on this point is lacking.

*If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.*

### Blindness from Arc Welding

*To the Editor:*—An arc welder wearing a mask but no apron works about ten hours daily. On several occasions a few hours after having stopped welding, this man experienced severe pain in his eyes and was unable to see for three or four hours. What probably caused the pain? Is there a probability of permanent impairment of sight if this man continues arc welding? Will the use of the welder result in sterility?

E. B., Indiana.

*Answer.*—The likelihood of incurring temporary eye injuries from the radiation of electric welding is well known. Without protection to the eyes, blindness has developed when the eyes were exposed for a short time and at a short distance from the welding process. One reported case of blindness from electric welding showed the patient watched electric welding without protective glasses for about eight minutes at a distance of 4 or 5 feet. Another reported case of a young girl who stopped to watch a job of electric welding without proper eye protection has been noted. She stood from 4 to 6 feet from the welding process, and the next day the sight was blurred in both eyes, and she could not see to read.

As to the cause of pain, the injurious gases inhaled by the worker might well be considered along with the light factor, as workers in closed quarters suffer more than those working outdoors. Not only ventilation but limitation of exposure during working hours must be considered.

A method of eye and respiratory protection by the use of an air mask which fits beneath a hinged welding helmet has been developed.

There is probably no danger of sterility from exposure to arc welding.

---

### Syphilis and Hair Dye

*To the Editor:*—Is it dangerous for one whose central nervous system is affected with syphilis to use hair dye that contains anilin? What would the after-effects be? Would it be dangerous, especially on the eyes? I was told that it would cause breaking out on the skin without any serious consequences. Can locomotor ataxia and general paresis be checked in the early stages? Can worry bring on or cause locomotor ataxia? What are the symptoms of general syphilis of the central nervous system?

H. K., Ohio.

*Answer.*—There is no more danger for a syphilitic patient to use hair dye containing anilin than for any other individual to do so. Any person who employs hair dyes is running a certain amount of risk, for in a certain number of the cases a dermatitis is liable to develop over the head and around the face and neck. Occasionally the eyes may be inflamed from it. This would have no relation to syphilis, however.

Locomotor ataxia and general paresis are late stages of syphilis, affecting the brain and spinal cord. Locomotor ataxia cannot be brought on by worry. These late stages of syphilis are usually due to the fact that the disease was not completely cured at its inception.

The symptoms of syphilis of the central nervous system are exceedingly difficult to explain and are not always clearcut and conclusive. They might lead to unnecessary worry. It is best and safest, if anything of this sort is suspected, to consult the physician at once and let him decide.

# STREAM POLLUTION (Continued from page 549)

"What'd you do, Dad?"

"Well, the governor made pretty short work of it, Son. He started in asking *me* what to do—me being the county health officer. I said: 'Get a temporary chlorine plant set up at the Exeter sewage outlet right away.'

"Doc Elston nodded.

"'What else, Smithies?' the governor asked.

"And another temporary chlorine outfit at the Spring Valley water plant to help out,' says I.

"Doc Elston nodded again.

"'Anything else?' the governor asked.

"'Yes,' I says. 'You have to get a sewage plant built up at Exeter, so's to stop all this pollution of Spring Creek. Exeter's the only town left in these parts that doesn't treat its sewage before dumping it into a stream or lake that other folks use. That's the *real* answer,' I says to him. 'All the rest of this stuff is just temporary and won't help much in the long run.'

"The governor turned around. 'How about it, Tim?'

"Tim looked sort of green about the gills. He stuttered and sputtered and then finally got out, 'Well, you see, Your Honor, we didn't think we could afford it.'

"'You didn't, hey?' stormed the governor. 'How about that state appropriation we let you have for public benefits at the last session?'

"'Well,' Tim hesitated and swallowed. 'Your Honor, it was this way. We wanted some new parks and a . . .'

"'Parks my eye!' roared the governor. He was fighting mad by this time. 'You've got no business spending public money on parks when your sewage is spreading epidemics down through the state!' He pounded his fist on the table, then got up from his chair and paced up and down to cool off."

"Oo! Dad!"

"Finally he got settled down again and asked Tim how far the park project had gone.

"'Are the contracts signed yet?'

"'Well, no, Your Honor,' Tim was squirming. 'But some friends of mine—and of the party . . .'

"'Then cancel 'em,' snaps the governor.

"After he'd sort of cooled down, he began talking more reasonably.

"'Let's see now, Tim, that appropriation was for $10,000, if I remember aright.'

"Tim swallowed again and said, 'Yes, Your Honor.'

"Then the governor turned to Doc Elston. 'Would that be enough for these temporary chlorine outfits?'

"A DISTINCT MURMUR OF THE HEART, FOR WHICH I PRESCRIBE PLENTY OF FRESH AIR, GOLF AND FISHING."

Reprinted by special permission of the Saturday Evening Post, copyright 1937 by the Curtis Publishing Company.

"'Plenty, and a lot more,' says Elston.

"'Then *get* 'em,' says the governor and, turning back to Tim, 'get 'em quick,' he ordered. 'They're going to come out of your appropriation for public benefits up at Exeter. Wire for 'em right away,' he says.

"But Tim didn't know how to go about it, that was sure. So I spoke up, 'I've got a friend up in the big city that could do it quick for us, name of Berkn—'

"'Never mind his name,' sputters the governor. 'Get him on the phone!'

"So I did, right then and there, and ordered both the chlorine outfits sent."

"Did they come?"

"Sure. They're both working right now, and in about three days there won't be any more new cases of bloody flux showing up in Spring Valley."

Sonny thought it over for a moment. "But what about this sewage treatment plant up at Exeter, Dad, so's it won't happen again?"

"Well, I left them there in the governor's office, figuring it all out. Whether it's to be built by the WPA or the PWA or just a 50-50 chip in by the state and county, it doesn't matter much. It's got to be done regardless. But I had to get back to the laboratory and see Doc Williams about those specimens."

"What'd Doc Williams say?" queried Sonny.

"Well, he wouldn't say much at first, except that it was bacillary dysentery. He was still fussing around with Baby Wilson's specimen that I'd sent in the day before."

"What's bacillary dysentery, Dad?"

"Oh, it's an intestinal disease kind of like typhoid and caused by a germ named the dysentery bacillus."

"What's the germ look like?"

"Oh, like about half a match, under the microscope."

"Gee! Could I see 'em, Dad?"

"Sure, I'll take you over to the lab some day."

"Did you and Doc Williams just look at the specimens from Baby Wilson under the microscope and find this bacillus whatever it is, Dad?"

"Oh, no, Son. You can't just look at a specimen like that and tell what kind of a germ it is. There are too many kinds of germs that look alike—seeing them that way. Why, take these bloody flux germs that we have down in Spring Valley, there are lots of different kinds."

(Continued on page 572)

# EXERCISE (Continued from page 533)

But suppose that I am out riding on the bridle path of a pleasant Sunday morning and overtake a man on a fine looking chestnut gelding. I may ask whether he minds if I ride with him and, receiving an encouraging reply, spend an hour with him discoursing of horses and gaits and leather gear, and weather and politics and immortality. He has nothing to give me, and I nothing to give him save such things as arise from personalities, from common interests, from fresh outlooks, under conditions of exercise and sunlight and stimulating breezes, conditions which make for naturalness and relaxation and absence of conventional restraints. If we are not attracted to each other, we part courteously at the end of the ride and never meet again. If we find in each other something which might be worth cultivating and enjoy riding at about the same rate, we may discover each other's names and find it convenient to ride together another morning with the possibility of a friendship which has nothing to do with the interchange of the coin of the realm or social advancement but merely with the mutual enjoyment of a pleasurable activity at first. In such natural ways do most friendships grow rather than from being members of the same Rotary club or fraternity.

Far be it from me to imply that physical recreation furnishes the only or even the chief soil from which such a flower may spring. A common interest in music or stamp collecting or gardening may do the same thing; but the atmosphere of physical play is conducive to friendship.

This brings us more or less naturally and irresistibly to the matter of joy, a commodity highly prized but often wrongly sought and faultily appraised. The old Italian song "Funiculi, Funicula," states that "joy is everywhere," and perhaps it is, but if so, it is a bit like mineral resources hidden under a good deal of ground. In order to uncover it, one must do a certain amount of mining and sapping, drive tunnels and construct hoists and tracks and get on the good side of mules which will haul the product hither and thither as necessary in eternal darkness. It is a bit like opportunity, which may knock at the door but must needs be recognized and bidden to enter rather than frozen out by silence or passed on to the next house by hostility. Fish are everywhere in the sea and the larger lakes, but they do not habitually jump into your boat. They must be wooed with attractive bait, live bait, flies, spinners or spoons. You must use rods and lines and hooks and snells and reels and all the other numberless things which fish like, in order to lure them from their customary hideouts to your lap. But, come to think of it, joy is not so much like fish and coal in many ways, since it is quite likely to be a by-product gained by seeking something else and if sought as an end is all too likely to prove a sham. It is a bonus which comes to the deserving at Christmas, an unexpected but most welcome addition to the regular honorarium.

But however much joy there may be available he would be a hardy soul indeed, and optimistic withal, who would say that there is too much of it about in these days. War is abroad in the lands. And after war comes pestilence. And after pestilence come floods. And after floods come sit-down strikes. And after strikes come walkathons, abdications of kings, grasshoppers, droughts, comic strips—disaster after disaster, woe upon woe—too much misery, too much of man's inhumanity to man, too many insects perhaps, but surely not too much joy.

What is joy? Definitions are always difficult, and few of them are satisfactory to all persons. To you a beautiful sky may connote slate-gray clouds, modest colors, absence of glare; to me it signifies bright blues, fleecy clouds, brilliant sunshine. In this instance suppose that we avoid Webster, great and good man though he may have been. Without looking in the dictionary I can imagine that it would give a list of synonyms, such as pleasure and happiness, under the heading of joy; but to me, at least, joy is more lasting than pleasure, more intense than happiness, perhaps more lofty than either. An American family on Decoration Day packs a fine lunch and piles into the old car to seek joy on the open road; but instead they achieve dust, traffic jams, profanity, mosquitoes, exhaustion and a headache. An American father hurrying home from work pauses to buy a toy automobile for his 2 year old son, to whom he presents it when he enters the apartment. The youngster's face lights up; he exclaims, "O-o-h, Daddy," and joy enters the home. Possibly, among our 120 million folk, those to be envied, if any, are the ones who have the greatest capacity for enjoyment, and strangely enough they are not always found among the wealthy or prominent, as witness the American Negro. Time is fleeting, as some one has said. The present does not stay in its headlong flight from the unknown future to the slightly better known past, and genuine joy exists in prospect and retrospect. It is a thing to be looked forward to with keen anticipation if it can be foreseen, to be held in pleasant memory.

With all these things in mind, I venture to suggest a definition: Joy is spiritual exhilaration without regrets, with no dark brown taste the morning after. A slice of sweet, orange colored, richly flavored canteloup may give pleasure but scarcely joy, since the delight is carnal and momentary. He would be a materialistic man who looked forward for days to eating a melon and cherished the memory of it among his souvenirs for weeks or months; but a Brahms symphony may accomplish those very things.

At this point I am bold enough to state with some confidence that for many people physical recreation provides real joy, and I am immodest enough to draw an illustration from my own humble youth. I lived in Oberlin, Ohio, a college town in which dancing was anathema but skating was permitted. I became interested in figure skating and attained some skill by the time I finished high school. At that time I took a vacation for a year to work in a drug store for a fine, deaf man, freezing ice cream by hand and waiting diffidently on the college girls. And, to quote Kipling, "I learned about women from them." Came the winter, as our better writers would say, and Tom Gayters flooded his skating rink and organized his Negro band, for it was customary to have music every evening and Saturday afternoons, and there, right before members of the faculties steeped in the tradition of the wickedness of dancing, young men put their arms around feminine waists and waltzed to the "Beautiful Blue Danube." On the ice, quadrilles, Virginia reels and various combined maneuvers of our own devising were performed to music the while young persons of different sexes held each other's hands and associated with a certain physical intimacy, providing a delicious example of inconsistency and the ability of youth to circumvent age.

To me, while washing and polishing show cases or cleaning the soda fountain on a Saturday afternoon, would come the strains of music from the band which paraded through the streets to stimulate the

"I'M SORRY, OLD MAN, BUT I CAN'T FIND YOUR HEART ANYWHERE!"

populace. And I could feel successive waves of stimulation mounting in my bosom as I attempted to disregard them, saying, "No, young feller, you're a working man now and must toil and slave for your $5 a week." And so drearily on with the work until a customer would open the door and permit to drift in a distant strain of one of my favorite waltzes. Well, Paul Chase was probably skating with Maud Monroe, the best of the girl skaters in my opinion. What a lucky dog he was. It would then be necessary for me to address an unseen companion thus, "Beelzebub—to the rear, march!" After an hour or so of this unequal battling between a 16 year old youth and the combined forces of evil I would approach the boss and say, "Mr. Burgess, don't you think I'd work better if I went skating for an hour?" And I honor him in my memory as an understanding Christian gentleman because he would nearly always say, "Run along. You're no good here." And I'd grab my skates and really run every step of the way to the rink, and Maud Monroe would be there, and I'd skate with her and with other boys and other girls. Reluctantly, I'd return to work, probably boylike a little later than I had agreed but with a glow of satisfaction which would last on into the night when in my dreams I would do impossibly intricate figures with a free swing and grace which would elicit tumultuous applause from the onlookers.

And to this day the combination of music and good ice is to me like a martial band to an aging charger. It makes me no good where I am.

Joy in physical recreation may be compounded of many elements, including pleasure in the actual activity, relaxation and change, pleasant surroundings, companionship, anticipation and memory.

There is a satisfaction in doing well some physical thing. Joe DiMaggio must feel it when his bat meets the ball just right and he knows that the horsehide pellet is off for a ride. As I watch an expert golfer, a Horton Smith for instance, take a long, smooth swing with a three iron, head down and good follow through, smiting the ball farther than I ever hit one with a driver, passionate tears well up in my eyes, and I am spiritually at one with the poet Whittier, who wrote "Of all sad words of tongue or pen, . . ." But to Horton or Gene or Tony or whoever kissed the ball in that fashion there must be pleasure in the operation.

These sports are usually such as require a bit of attention and so take the mind from the price of stocks, the leak in the plumbing or the income tax, at least for the time. They are likely to be outdoors, and that's something. In fact that's a good deal and leads us to a brief digression which may be skipped.

**(Digression on the Outdoors—Optional Reading)**

There are few persons in this land of ours to whom the outdoors in the country does not bring something at once stimulating and soothing, something exciting but yet calming, something which has an overwhelming appeal to something in them. Stand with me in Plymouth, N. H., on the Saturday before Labor Day beside route 3, which takes its tortuous way from Boston up past Lake Winnepesaukee to the White Mountains, and note that among the continuous stream of cars passing through the little village, five bear Massachusetts plates to every one with New Hampshire plates. Why have these thousands left the intellectual atmosphere of Harvard, the traditional and hallowed benediction of the Cabots and Lodges? Before the advent of the present moist and beneficent administration, many of them would have been madly dashing across the Canadian border, but not now. My friends, as a more noted writer than I would say, they are off to the mountains, to the land where clear waters flow fast over rounded rocks, where every road is a winding road and every road is a beautiful road, where distances are short, and unexpected beauties lurk around each curve, where the Franconians and Presidentials rear their granite heads above green blanketed slopes, where the Old Man of the Moutains looks down in calm dignity on the white man as he did on the red, where even the miseries of golf are assuaged by the surroundings.

Or, six months later, stand with me again in the North Station in Boston or Grand Central Station in New York on a Saturday morning, and view other hundreds in warmer garb but with the same eagerness, skis on their backs and anticipation in their eyes. Where are they going so early in the morning, and why? You know as well as I. And you know how quiet they will be when they return Sunday night, how tired but how satisfied and refreshed. There is probably something to it which cannot be surrounded by calipers or tape. And we might interpolate here a remark to the effect that the outdoors is not enjoyed so much at 60 miles an hour. Governors on motors may not decrease the dangers of driving, but they might increase the enjoyment of the country driven through. The horse and buggy days are spoken of with scorn, but the horse and buggy travel involved less beauty missed. And, of course, "Shank's mare" is the ideal steed for the woods and hills for more reasons than one.

**(End of Digression)**

The sense of well being, which has been mentioned before, plays a part in the joy of physical recreation both immediately and in the absence of regrets. It is an everyday observation that it is difficult

*(Continued on page 570)*

# PARASITE TRICKS (Continued from page 530)

this liberates a large number of new sporozoites, now called merozoites. Most of these new merozoites attack red blood cells at once. Thus the cycle continues until the man is either cured or dead or possibly establishes such a resistance that he is not much affected.

Among these sporozoites are some that seem to be different, though they all look alike. These manage to get to the surface of the body, where if a mosquito bites, she will take up a large number with the blood she sucks, for they are exceedingly tiny. When they enter the body of a mosquito a remarkable change takes place. These parasites may now be differentiated into two forms, male and female. The male, the microgamete or small gamete, develops a number of little whiplike projections, which move violently and soon break off from the body of the male cell. They lash around and soon find a female cell, which they enter. Then the female cell, macrogamete or large gamete, becomes active and commences to grow. Now known as an ookinete, active or moving egg, it passes through the wall of the mosquito's stomach and locates there, forming a little nest or cyst and growing rapidly. Soon there are too many of the active eggs for the nest, so they break out and start wandering all over the mosquito's body. Perhaps all this makes the mosquito cranky and irritable, for she certainly bites viciously.

These sporozoites, which are sometimes called sporoblasts, settle in all parts of the mosquito's body; but particularly they fill up the salivary glands, which are right at the end of the first hypodermic syringe mentioned. Here the parasites mature, and when the mosquito bites, they are pumped down the syringe into the blood of man, until he either gets rid of the mosquitoes or kills the parasites with medicine. The period in man is called the asexual cycle or stage, and in the mosquito, the sexual cycle. It is essential that the mosquito be present, or the parasite cannot develop and the cycle is broken.

The mosquito problem is one of importance to practically every one. Even if one does not live in a malarial region, one will not have to travel far to reach one, and almost every one travels during the mosquito season. Malaria exists in most of our states and is the cause of much sickness and disability. It is a disease we do not think of as fatal, although the mortality from it, directly and indirectly, is large. At times it partly disables whole populations and keeps them below par in health, making them much more susceptible to other diseases. It ruins families by preventing the breadwinners from working and often keeps them partial invalids for years. An insidious foe, it is not always recognized as the cause of troubles.

There are three, and some modern writers think four, types of malaria. Each is caused by a different parasite, but their lives in the human being and in the mosquito are identical for all practical purposes. The most common type is called benign tertian. This is the ordinary fever and ague. The parasite takes about forty-eight hours to mature, so that the chill comes every other day and, if uncomplicated, at almost the same hour each time. Often between chills the patient feels quite well. When people are not accustomed to chills, they are sometimes very sick, but those who live in malarial countries gradually establish something of an immunity, and the attacks are not nearly so severe.

Another type is called quartian because the chill comes every fourth day. The chills are thought to be caused by poisonous material liberated at the same time as the parasites.

The third variety is the most severe and deadly; so it is spoken of as malignant or estivo-autumnal (summer-autumn), and sometimes this form is quickly fatal. After an immunity is partly established in all of them, they may not cause much trouble, except at considerable intervals at first. But in almost all cases there is a gradual decrease in the strength and vitality of the infected individual, and while he may be able to get about, he is weak, often emaciated and generally miserable. In the malignant form it causes many deaths. The other forms also cause fatal illness, though not so frequently. Sometimes there will be more than one variety of parasite in the blood, and so there may be a chill and fever every day, or perhaps even twice on some days. It is entirely possible for all three forms to exist in an individual at one time. Such a case occurred many years ago in the Philippines. It was far up in the interior of Luzon at one of the most malarial places in the islands, and the men were constantly in the field after the "ladrones," as the guerilla bands were called. One fine, husky looking young soldier would always start out in apparently good condition but soon become fatigued and would return sick. Then later he had to be brought back two or three times. A day or so of rest and he would appear perfectly well; finally there began to be some question as to whether he had "cold feet." About this time some laboratory equipment arrived at the hospital, and his blood was examined. All the varieties of malarial parasites that were then known were found. It was a wonder that he had ever been able to get out of bed at all, to say nothing of trying to hike in a tropical jungle. In due time he recovered. But prolonged exposures of this nature wear men out, and partial or complete invalidism follows. So destructive is malaria and so world wide is its distribution that it has been called the "wrecker of empires." Many observers now believe it was the destruction wrought to the people of Rome through malarial infections rather than the Hun invaders that caused their downfall. Certainly it has destroyed armies and civilizations, and it is more than probable that some of the mysteries of the disappearance of past civilizations could be traced directly to the mosquito.

Malaria is not the only disease for which the mosquito is responsible. One of the first diseases suspected of being intimately related to the mosquito was yellow fever. It had been observed to come in the warmer weather and was checked as soon as there was frost or weather cool enough to stop insects from flying. But it was not until just after the Spanish American War that the facts were clearly demonstrated by a medical Army board headed by Major Walter Reed. After much work and many experiments, during which one of the board lost his life and another one nearly did so, mosquitoes were found to be the only means by which yellow fever can be transmitted, and at that time it was thought that only one species, Aedes aegypti, could convey the disease. This led to the banishment of the disease from much of the tropical area, where yellow fever has always existed so far as is known, and made it possible for man to live in the tropics, where formerly the "climate" was so deadly that few survived. With the control of yellow fever, malaria and other mosquito-borne diseases were also nearly eliminated. Until this discovery made it possible to control mosquitoes and so the tropical fevers, it was impossible to build the Panama Canal. It had been previously tried by the French, and they had skilled engineers and good equipment, but men died so rapidly that it was impossible to carry on the work. So it was abandoned.

With the discovery of the relation of the mosquito to yellow fever, most persons thought that it would

be perfectly possible to wipe this disease entirely off the earth, and work was started with that in mind. For about twenty-five years, scientists were rightly enthusiastic about it. Yellow fever disappeared from Cuba, where it had always existed, from the Panama Canal Zone and from most of South America. It was still found in parts of Africa, and scientists were eager about finishing the job. But something happened to the plans, and again the parasites had tricked us. In South America and in localities where there were no known yellow fever mosquitoes or cases of yellow fever, strange fevers began to appear. New tests proved that these were yellow fever, and it was then discovered that not only Aedes aegypti but many other species of mosquitoes could transmit yellow fever and that many of the jungle animals carried around the infection but were not at all affected by these parasites. "Reservoirs of infection" are always present in the jungle animals. Infection is passed from one to another in various ways but mostly through insect bites. So yellow fever continues a menace. Thus have the parasites upset our ideas of a permanent and complete control of this destructive disease. They have enabled it to be transmitted back to this country and other thickly populated lands through the rapid transmission of infected mosquitoes or infected people in airplanes, thus adding greatly to the perplexities of control.

A disease closely related to yellow fever is also transmitted by the same species of mosquitoes. It is called dengue or breakbone fever, and the pain in the bones and muscles is so severe that those who have had it insist that it is even worse than the name implies. This is an exceedingly painful but rarely fatal disease and is eliminated by the same means that rids us of mosquitoes. Like malaria, this disease is widespread and at times causes serious upsets in populations when many become sick at the same time. In the southern states not long ago several epidemics involved more than half the population.

In the tropics of almost all lands, mosquitoes carry other parasites, among which are the ones causing elephantiasis, a disease in which one or more limbs are tremendously enlarged from the stoppage of some of the tiny vessels of the body. This stoppage is due to blood worms known as filaria (Filaria sanguinis hominis) or hair worms, which cause much disability, often over many years for the disease is not often fatal of itself.

Another parasite that is carried around by mosquitoes does not often affect human beings but does invade one of man's best friends, the dog, and is known as the heart worm (Dirofilaria immitis). Such invasions occur more often in China and Japan but are found in this country also.

One other trick will be mentioned. There is a certain fly (Dermatobia hominis) that captures the female mosquito, glues a number of eggs to her abdomen and turns her loose. These eggs develop to the hatching point, but the larvae do not leave them until the mosquito alights to bite, when they quickly slide out of the eggs and penetrate the skin, entering the blood stream. This fly also utilizes other blood-sucking insects to broadcast its young.

Mosquitoes are disagreeable and dangerous neighbors, and it is necessary that we get rid of them as completely as possible. Almost complete control is possible where people are informed and in earnest about it. Control and destruction must be continuous, as mosquitoes breed in such prodigious numbers that a few left alone for several weeks will again produce millions. Such efforts are now successfully carried out in many places. Although it seems impossible to eradicate mosquitoes at present, we can reduce their numbers to a point where they are of little danger and annoyance.

[NOTE.—In the July issue, Dr. Skinner will discuss flies, envoys of disease.]

# YOU—AND YOUR CHILD'S CAMP

(*Continued from page 523*)

when unnecessary danger may occur.

A parent has a right to demand that all outdoor equipment and apparatus (especially everything connected with the water-front, where rusty nails and old rotten or splintery wood are liable to appear unexpectedly and where they can do so much damage to tender, water-softened skin) be meticulously inspected and kept in the most perfect condition that constant care can insure. Stables and corrals and riding rings should be freed from stones, and tanbark or other suitable material should be employed freely. Throughout camp this idea of prevention through careful inspection and prompt repair should be evident to the least observant visitor. It will mean much to the discriminating parent.

One more thing may fairly be demanded of the camp: Its schedule should be so fitted to the child that undue fatigue is avoided, and the rest and recuperation are provided that are probably badly needed as a result of a year of our modern high pressure schooling. The parent has a right to expect that his child shall be returned to him in better condition than when the camp took him over. A camp that cannot comply with this simple condition may fairly be said to have failed with the child who comes out physically worse than when he entered.

The one place where the efficient, up-to-date director is most likely to err is in the very efficiency of his organization and the attractiveness of his program. At the end of the summer a girl or boy whose enthusiastic participation in a fascinating program has been maintained at too high tension all summer may suffer a serious loss of weight, strength and health.

Parents have a right to demand that this business of physical and emotional efficiency be kept in the foreground of the thinking of the whole camp staff and that the natural exuberance and enthusiasm of the bright, interested youngster, who needs the rest and recuperation far more than does his less strenuous cousin, be kept in check. Whether the need be for longer rest periods, though probably it isn't, for an earlier hour for retiring, which it probably is, or for any other regulation, the parent should demand that this element of proper and sufficient rest be stressed.

School is a strenuous time; camp should be just the opposite. The school year is a time in which the youthful organism runs down; so let's make camp a season for building it up. All these demands may well be made of the camp by the parent. Then camping will be the wonderful health measure it should always be.

[NOTE.—In the July issue, Dr. Richardson will give the other side of the picture: what the camp should demand of the parent.]

*Now that the vacation season is beginning,* HYGEIA *readers will be interested in the broadcast "Vacation Plays and Misplays," to be given June 1 under the auspices of the American Medical Association and National Broadcasting Company. For a happy, healthy vacation, know your vacation hazards—and what to do about them. They may include those of diet, water, sun, swimming, hiking, plants and playgrounds. For further information, see page 555, and tune in for the broadcast on June 1.*

# LIFE'S "PERPETUAL CHILDREN"

(Continued from page 514)

never amount to anything. But a real understanding of his mental assets and liabilities is needed in order to help intelligently in his development.

The purpose in training the mentally handicapped child should be twofold: His native abilities, physical and mental, should receive opportunity for the fullest possible growth, and he should be taught his social relationships with other individuals in order that he may make acceptable adjustments to them. Like any other child he should slowly take on such responsibilities as he is capable of understanding and performing. Such requirements will naturally be much less than those expected of normal children. It is absolutely essential to his welfare that he increasingly feel that he has a real place in the world. He will become a real person to the extent to which his native abilities are developed. He will stand still, or worse—he may regress—if more is expected of him than he can possibly do. Don't try to fit the square peg into the round hole. The stupidity is certainly not all on the side of the feebleminded when the impossible standards of performance that have heretofore been set for them are considered.

I have stressed the question of the handicapped child's home as the paramount issue to be settled for his happiness. Specialists for his formal education are to be had nowadays in most cities. The question of his home, after all, is the only really debatable one.

If you parents are sure you understand the needs of your handicapped child; if he is likely to benefit from the ordinary home environment; if you can undertake his training with full justice, not only to him but to the other members of the family; if you possess the poise that comes from selfless love and a good sense of objectivity, then you may make a good job of keeping your little one at home.

But if, all things considered, you honestly decide he will have greater opportunities for development in a special environment, look for a good school that specializes in training exceptional children or young people or for a small sanatorium with school privileges. Choose some place where he will have the greatest advantages, where possible disease factors are well understood, where the living conditions approximate those of family life and where ample provision is made for constructive training. Here the child will have congenial companionship. He will not be constantly haunted by the sense of inferiority he is bound to feel in the ordinary home environment. The occupations in such an institution are broad enough to permit the following of individual preferences. Contacts are kept up with families and friends. Patients are not considered as "inmates." They go about and visit the town under enough supervision to ensure safety. Staff members are trained in the most progressive psychologic methods. School advantages designed for definite needs are provided. Usually there are no uniformed nurses or attendants; yet every provision is made for the best medical care and treatment. Signs of illness are kept in the background, giving the handicapped or nervously ill child a chance to feel he is like other people.

Common sense, isn't it? There are exceptional children who need regular hospital treatment. Many can live at home to good advantage, while for countless others the best solution would be a special environment such as the one just described. Many schools and sanatoriums are doing fine work in meeting the special needs of handicapped individuals, and state hospitals are doing what they can under their own enormous handicap of dealing with overlarge groups.

When you make the great decisions that involve your child's welfare and happiness, try to look at the situation objectively. Clear up the blind spots that have formed through wounded hopes and pride. Help him become the most capable individual he can possibly be. Thus will he find his place in the world.

---

# TO AMERICA'S SCHOOLS—YOUR HEALTH

(Continued from page 557)

of the medical profession in the United States, and as such, is the only body authorized to speak for the profession.

4. The medical profession, through its elected representatives, is making earnest efforts to study problems which affect physician and patient, and to work out solutions for the best interests of the patient.

5. The medical profession is not moved by "ballyhoo" to abandon established principles which have shown their value through the centuries.

6. The medical profession is constantly contributing to the advancement of medical science through clinical observation and laboratory research and by adopting the discoveries of related sciences to the uses of medicine.

7. The medical profession is vitally interested in the furtherance of all proper movements for the improvement of the public health and has cooperated liberally with them.

8. The medical profession is vitally interested in the health education of the public.

9. The medical profession is determined that the independence of the profession and its personal relationship with its patients shall be preserved in the interests of better medical care for the people. For the same reason it is opposed to the development of any system of medicine, either governmental or voluntary, under whatever name proposed, which will interpose a third party between the doctor and his patient in any of their mutual relationships, will discourage the free and independent exercise of the physician's best judgment in the treatment of his patient, will discourage research, penalize initiative or discourage the highest types of young men and women from seeking a career in medicine.

10. The medical profession has originated many methods which have brought many diseases under more effective control and have greatly modified the serious effects of others.

11. The medical profession is fearless and unselfish in the defense of its principles, which are based on the best interests of the patient.

### REFERENCES FOR THE TEACHER


Economics and the Ethics of Medicine. Price, 15 cents. Prepared and published by the Bureau of Medical Economics of the American Medical Association.

Sickness Insurance Catechism. Price, 5 cents. Prepared and published by the Bureau of Medical Economics of the American Medical Association.

Sickness Insurance and Sickness Costs. Price, 5 cents. Prepared and published by the American Medical Association Bureau of Medical Economics.

Way of Health Insurance by A. M. Simons and Nathan Sinai. Price, $2. Chicago: University of Chicago Press, 1932.


### SUGGESTED PROJECTS

Prepare a topic in health to show newly acquired knowledge. Compare this with a previous paper, as suggested in first broadcast.

"BELIEVE IT OR NOT" BY Ripley Trademark ©

TUNE IN BELIEVE-IT-OR-NOT RIPLEY
Every Tuesday night. NBC Network.
See local paper for station and time.

You can't live without iron in your system! Yet there is not enough iron in 781 men to make an ordinary farm horse's shoe. Post's 40% Bran Flakes are a good cereal source of this vital mineral.

* * *

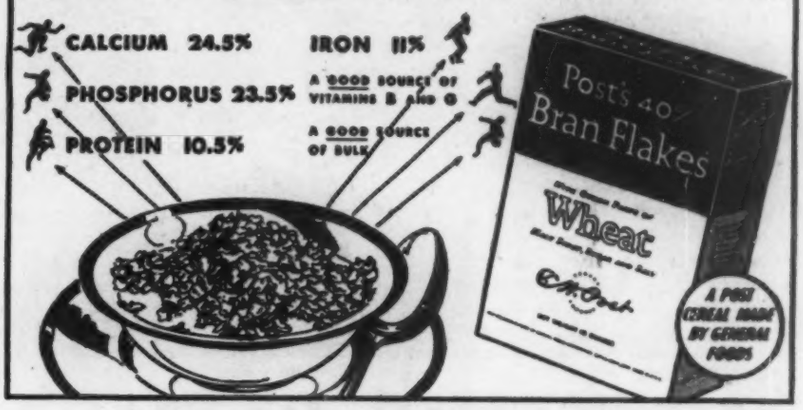
A serving of delicious Post's 40% Bran Flakes with milk or cream and sugar, provides valuable food essentials the human body requires—carbohydrates, proteins, fats and Vitamins $B_1$ and G with a small amount of Vitamin A.

Millions prefer Post's Bran Flakes for their *different*, nut-like flavor alone. Yet this popular cereal, eaten daily, helps supply needed bulk. *And adequate bulk is an essential for keeping fit.*

Why not enjoy a bowl of Post's Bran Flakes every morning?

HERE IS THE FOOD VALUE OF A DISH OF POST'S BRAN FLAKES AND MILK

Each percentage represents the proportion of the *total day's* requirement which a single serving of this delicious cereal affords. (Based on ¾ cup of Post's Bran Flakes and ½ cup of milk—4 oz.)




*Month of Enchantment*

*

Golden days and moon-silvered nights . . . the breath of young summer sweet with the mingled fragrances of myriad flowers. No wonder that June is the ambassador of romance, the month of enchantment. Woman just naturally responds to the sweet mystery of June because she is a part of its pattern. She is inspired by Nature to give full and simple expression to her loveliness through the ancient medium of a June night. Throughout the ages man has responded to the spell of romance that she and the stars scintillate.

But we may as well be practical and admit that lovely gowns and fine cosmetics and exquisite perfumes have a great deal to do with that spell of romance. That which we consider lovely is often just an accent on personality achieved by an artistic cosmetic effect.

You will be simply delighted with the many interesting suggestions Luzier Representatives have for you concerning suitable cosmetics and perfumes for summer use. A card addressed to Luzier's, Inc., Kansas City, Missouri, will bring a Luzier Representative to your home.

LUZIER'S, INC., MAKERS OF FINE COSMETICS & PERFUMES

KANSAS CITY, MO.

# GETTING STOUT?

THE first signs of "getting stout" are Nature's warning to check on your habits of diet and exercise. But your scales cannot tell you what you should weigh. To check your weight intelligently, you will be aided by the information in the Metropolitan booklet "Overweight and Underweight."

If you are over thirty, a weight 10 to 20 pounds below the average is desirable. Excess fat is often associated with heart disease, diabetes, kidney trouble and high blood pressure. Furthermore, fat may be a handicap in surgical operations and in certain acute diseases, especially pneumonia. As a rule, fat people do not live as long as those of normal weight.

Under thirty, it is better to weigh 5 to 10 pounds more than the average. Extreme slenderness in young persons may endanger health. A few extra pounds help in early life to protect against tuberculosis.

***Exercise and Diet—***

Fortunately, in most cases overweight can be brought safely under control by exercise and by cutting down on fattening foods. But before making drastic efforts to reduce, have a physician examine you.

He will tell you what your weight should be, help you plan a diet, and advise how to effect a moderate, steady loss of weight. This is far wiser than quick reducing methods.

***Overweight children need help—***

Excess weight may be due to a glandular disturbance, requiring medical aid. The overweight child often suffers keenly from slights and gibes of playmates. Treatment should be sought without delay.

When reducing, you don't need to starve or suffer distress. You can eat three adequate meals a day and still lose weight. Send for the Metropolitan booklet "Overweight and Underweight" which has many suggestions for reducing sanely and safely, subject to your doctor's approval. Your copy will be mailed, free, on request. Address Booklet Department 638-Z.

METROPOLITAN LIFE INSURANCE COMPANY

FREDERICK H. ECKER, *Chairman of the Board* LEROY A. LINCOLN, *President*

ONE MADISON AVENUE, NEW YORK, N. Y.

Copyright, 1938, by Metropolitan Life Insurance Company

## EXERCISE

*(Continued from page 565)*

to be happy at a dance with corns and tight shoes. Any physical discomfort detracts from happiness as well as from efficiency, even as the opposite condition conduces to both.

Fortunately many of the activities which we are considering require two or more persons, or at least one man and a horse. These associations, based on compatibility, minister markedly to the joy for gregarious persons. Such persons get more even out of an activity like mountain climbing, although it must be admitted that there are those who prefer to be alone on these expeditions. In general it seems to be true that sorrows shared are halved and pleasures shared are doubled. The mathematics may not be accurate, but the principle is sound.

Memory is doubtless an important thing, and much could be said about it. Most of this I propose to leave unsaid and shall merely submit a parable.

In 1927 two men who were happy in the possession of wives and children had amassed, also, about $5,000 each. One of them, mindful of old age hurrying toward him, did not put his money in a napkin but did put it into good bonds and stocks that he might not be a charge on the community later. The other took his money, his wife and his children and went to Europe. Presently came that terrible day when the financial storms arose and beat on both their houses (two parables seem to be somewhat mixed at this point) insomuch that neither had any money left beyond his current income. Now which of these men was the richer?

Of course, one of the reasons for living a clean life is to have clean memories. One of the reasons for inviting joy into your life is to have happy memories, and the memories of the joy of physical recreation are not to be sneezed at. I know of men who voluntarily recall such memories as soporifics when the anxieties of the day keep sleep from their pillows. They recall something fairly successful which they have done, perhaps the golf game of two days before or the unusually good tennis played last Saturday. Lazily they go over their better shots one by one and induce some of the sense of well being which they had during and after the game. Imperceptibly this verges into a state of daydreaming in which they make rather better shots than they actually made, and this continues

until one of the deluded but now sleeping athletes is playing with D. Budge and, utterly without effort, is playing him off his feet. But we are all great men in our dreams. I have even flapped my arms like wings and flown like a bird.

This is not guaranteed to induce sleep, but it will work as well as counting sheep or looking at a blank wall, and it is pleasanter. Even if it doesn't, there remains still a good case for physical recreation as a source of joy according to our definition, spiritual exhilaration without regrets.

[NOTE.—Part 4 of Dr. Reed's series on exercise will appear in the July issue.]

## STUTTERING

*(Continued from page 550)*

permanent emotional imbalance. General rules of physical and mental hygiene must be observed in every regimen of child health. When defects in speech make their appearance the application of the principles of hygiene becomes an urgent necessity. Language is a symbol of human achievement, a tool wherewith the individual molds his position among men. His speech is often an index to his social background and his cultural attainments. The stutterer, in his fears and insecurity, is deprived of any dignity and respect of which he may be worthy, since he is unable to benefit from the blessings of proper speech. He is unable to express his thoughts.

A wise man once said, "Sow an idea, and you reap a habit. Sow a habit, and you reap a character." It is difficult to think of a more appropriate example to illustrate the truth of this statement than the habit involving defective speech.

[NOTE.—In the July issue, Dr. Jahr will continue his series on bad habits in good children with an article on whining.]

## NATIONAL EDUCATION ASSOCIATION TO HOLD CONVENTION

Consideration of "The responsibility of education in promoting world citizenship" will occupy the program sessions of the seventy-sixth annual convention of the National Education Association which will be held in New York City, June 26 to 30. Convention headquarters will be at the Pennsylvania Hotel, where there will also be special educational exhibits for the convention.

Their mother, Mrs. Thomas Kelly says: "Lux keeps dresses—blankets—diapers, too—so soft and nice. You won't find any signs of chafing on our triplets! There's nothing in Lux to irritate a baby's skin."

Wise mothers insist on Lux for all baby things—Lux has no harmful alkali. Buy the thrifty big box.

LUX

*Do You Need*

**HEALTH MATERIAL?**

The American Medical Association has a large amount of authentic health material in the form of pamphlets and books. They cover a wide range of subjects. Complete catalogue listing this material with prices will be sent on request.

# Schools and Camps

Has your child heart trouble, asthma, diabetes, nephritis?

He may lead a normal life, grow strong and learn in the sunshine at

La Loma Feliz
SANTA BARBARA, CALIFORNIA
*Ina M. Richter, Med. Dir.*
*John H. Deane, Headmaster*

*Schools and Camps for Exceptional Children*

● TROWBRIDGE TRAINING SCHOOL ●
Home school for nervous, backward children. *Best in the West.* Beautiful buildings. Spacious grounds. Experienced teachers. Individual supervision. Resident physician. Enrolment limited. Endorsed by physicians, educators. Booklet. E. Haydn Trowbridge, M.D., 1810 Bryant Bldg., Kansas City, Mo.

**THE MARY E. POGUE SCHOOL** for exceptional children
Individual instruction for backward and problem students of any age. Separate building for boys. Epileptics accepted. G. H. Marquardt, medical director. W. H. Holmes, consultant. Gerard N. Krost, pediatrician. 80 Geneva Rd., Wheaton, Ill.

*Schools and Camps for Exceptional Children (Continued)*

**Beverly Farm, Inc.** Home and school for nervous and backward children and adults. Successful, social and educational adjustments. Occupational therapy. Dept. for birth injury cases. Healthfully situated on 220-acre tract, 1 hr. from St. Louis. 7 well-equipped buildings, gymnasium. 40th year. Catalog. Groves Blake Smith, M.D., Supt., Box H, Godfrey, Ill.

**SPEECH CORRECTION**
Stammering, lisping, post-operative cleft palate, other disorders. An ethical school.

**SPECIAL EDUCATION**
Exceptional children. Individual instruction. Reasonable. College teachers.

**WILSON SCHOOLS** 9 Arnold Pl. Dayton, Ohio.

**MARTIN HALL**
for the correction of Stammering, Lisping, Loss of Voice, and Undeveloped Speech. Educational Subjects. Outdoor Sports on our new Estate.
*For Information Address*
DR. FREDERICK MARTIN, Director
Martin Hall, Bristol, Rhode Island

Tutoring and vocational schools for boys and girls with educational or emotional difficulties. Helena Devereux Fentress, Dir., or John M. Barclay, Reg., Box 90, Berwyn, Pa.
Devereux

PSYCHOLOGY OF SEX
by HAVELOCK ELLIS
ONE VOLUME
UN-ABRIDGED
CARL VAN DOREN says: "The best one-volume treatment of sex in the English language."
"...the best of all available books on this subject." —HYGEIA
—PARTIAL CONTENTS—
The Art of Love
Sex Life of Unmarried Adults
Sex in Marriage
Sexual Adjustments
Sexual Variations and Abnormalities
Substitutes for Sex
Age and the Sexual Impulse
389 Pages, Price $3.00 (Postage 15c extra)
5-DAY MONEY-BACK GUARANTEE
If over 21, order book at once
Emerson Books, Inc., Dept. 572-A, 251 W. 19th St., N.Y.C.

SEALTEX The Bandage That Breathes
DOZENS OF FIRST AID AND HOUSEHOLD USES FOR THIS SAFE, ALL-PURPOSE BANDAGE
For cuts, sprains, burns, varicose veins, corns, to protect fingers in household work or when sewing, to mention but a few.
COMES OFF WITHOUT PAIN, LEAVES NO MARKS
Made of *latex* for strength. Lets air in — keeps dirt out — promotes quick healing. Sticks only to itself — no adhesive tape required. Economical. Better.
For sale by your druggist.
Sealtex Co., 2012 Wabansia Ave., Chicago.
*For generous size* SAMPLE PACKAGE, *send* 10c *to cover cost of postage and packing.*

SEX BEHAVIOR IN MARRIAGE
by CHARLES A. CLINTON, M.D.
AT last . . . a book of sex technique that treats the subject frankly and in detail without offending . . . A medical authority proves that it is possible to cast aside all pretense and false modesty and discuss the most important single factor in human life in an intelligent, instructive manner.
SUBJECTS DISCUSSED
The Organs of Sex
Choosing the Proper Mate
The Wedding Night
The Technique of the Sex Act
The Various Stages of Sexual Union
Advantages of Various Positions
Impotence and Frigidity
Frequency of Intercourse
Sex Taboos
Birth Control
FAVORABLY REVIEWED BY
The American Mercury
The Medical Times
The New York Physician
■ It is the purpose of this book to give exact instructions for marital procedure. . . . Dr. Clinton's long years as a physician and wide clinical experience merit your confidence.
■ Your name and address on margin brings you this valuable book C.O.D. Pay postman $2.00 plus postage. Money back in five days if not satisfied.
State Age When Ordering
Pioneer Publication, Inc.
Dept. 34C6, 1270 Sixth Ave. Radio City, N. Y. C.

Try Shopping Among HYGEIA Advertisements

Thumb-Sucking
PREVENTED THE NEW WAY
Simply apply BITE-X to thumbs or finger tips. It instantly forms a tough transparent coating unpalatable to taste. Also stops nail biting. Contains Alcin, 3.1%—Oleo Resin Capsicum, 1.5% in a collodion base. Approved by child specialists. Send for free booklet.
Satisfactory Results or Money Refunded
MAIL $1.00 to Dept. 53
Child Welfare Guild, 386 4th Ave., New York

## STREAM POLLUTION (Continued from page 563)

"How many kinds?"

"Oh, let's see—about four or five kinds, I guess.

"What'd Doc Williams do with the specimens, Dad?"

"Well, the day before, he'd inoculated the first one on a plate of fast growing medium and put it in the incubator; and then that night his assistant had picked off and put all the suggestive looking colonies of germs on the plate into test tubes of a liquid culture medium, and placed them in the incubator. When I got there he had the test tubes set out in front of him ready to make a macroscopic agglutination test, as he called it."

"Yeah?"

"And he also had another row of test tubes over to the side, with the different kinds of serums in 'em."

"What kinds, Dad?"

"Well, from all these different kinds of dysentery germs that we've been talking about, four or five of them."

"What'd he do, Dad?"

"Oh, he took out several tubes at a time of the liquid germ cultures from Baby Wilson—they looked sort of cloudy—not clear like the control tube with no germs growing in it."

"Um hum."

"Then he took a medicine dropper out of a can, dipped it into one of the tubes of serum, drew up a dropperful and carefully counted out five drops of serum into each of the culture tubes, then put them aside. Next he took another set of the culture tubes out of the incubator and dropped in five drops of another serum and so on, until he'd put all the serums into at least one of Baby Wilson's cultures. Then he gathered 'em all up in a rack and stowed 'em away in the incubator. After that he came back looking kind of relieved.

" 'Well, Doc,' he says. 'We'll see pretty soon now.'

" 'How soon?' I asked.

" 'Oh, in an hour or so. Want to wait around?'

" 'Sure,' I says. 'I'll wait.'

"So I stayed right there talking over old times with him." He reflected, "Way back in the university, I was studying medicine and Williams was going in for this new bacteriology. Well, Son, those were the days! You'd better remember that when you go to college—the friends you're going to make there will pop up anywhere and everywhere afterward. Just like this, and they'll be *real friends.*"

"Did the tests show anything, Dad?"

"Sure they did. Every once in a while, Williams would take them out of the incubator, and we'd look at 'em. Pretty soon one of them began to look different from the others—with flakes like a snow storm falling down to the bottom of the tube. The others all stayed cloudy, just like they were in the first place."

"Gee!" exclaimed Sonny. "Which one was it, Dad?"

"The one with the Flexner serum in it."

"The Flexner serum?"

"Yes, Son. And it showed that Baby Wilson's germ was the Flexner type of the dysentery bacillus."

"This dysentery bacillus—that's an awful big name," complained Sonny.

"Yes, Son, and an awful big trouble for the kids too," the doctor remarked. Then, thoughtfully, "All the other kinds of this germ, are just as big a trouble for the kids, and they're all spread in the same way, through water and foods."

"But, Dad, how did Doc Williams *make* all these serums in the first place that he used to test Baby Wilson's germs?"

"By injecting the different kinds of dysentery germs into rabbits, until they sort of got used to it; then taking some of the rabbit's blood serum, which contains things called agglutinins that have the property of making the particular kind of germs injected fall down like snow in a liquid culture, whenever a few drops of the serum is added. That's how it is, Son."

Sonny sighed sleepily, "Well, then it looks like we've got an epidemic of this Flexner kind of diarrhea down in Spring Valley," he concluded. "What'd you say 'Flexner' means, Dad?"

"It's a man's name, Son. Simon Flexner of the Rockefeller Institute in New York first studied the germ," the doctor explained.

"Well, anyway, that's what Baby Wilson's got and all the others too down in Spring Valley. Is that right, Dad?"

"Yes, Son, the others too. And it's a 10 to 1 shot that the whole caboodle of 'em came from that one case up at Exeter that dirtied up the water in Spring Creek."

## SCHOOL and HEALTH

*(Continued from page 559)*

of meeting the needs of families and children in these varying home situations. Heads of philanthropic institutions have added trained teachers and educational equipment in order to provide nursery school opportunities for slum children. In convalescent wards in hospitals it was recognized that children confined to a hospital for long periods of illness needed more than mere physical care in order to regain health and happiness. Several hospitals utilized the nursery school as a means not only of providing for children's needs but of giving nurses an insight into educational methods of handling other than physical needs of children. In some communities, mothers organized cooperative play groups and often through lack of knowledge of the essential character of such a school called them nursery schools, even though no person trained in educational methods was in charge. In a few cities public school systems have opened nursery schools as a means of learning more about the early development of children and its relation to the school age child.

This gives some idea of the varying types of nursery schools in existence today in addition to the early research centers which started the nursery school idea in this country. Certain it is that more and more parents and teachers are becoming aware of the added importance of the early years of a child's life. Greater knowledge of what the nursery school does for children, its aims and how it operates is of value to all those working for the interests of children, regardless of the particular age level in which one is especially interested.

It seems pertinent to point out at this time that until now the privilege of nursery school attendance has been limited, on the one hand to children whose parents can afford to pay private school tuition and on the other extreme to those children eligible for admittance in philanthropic nursery schools. In only a few communities so far has any type of public interest established nursery schools for children from the great middle class. If present indications evaluate correctly the real benefits which participation in nursery school programs gives to children it is reasonable to expect that the next few years will produce definite attempts to provide these benefits for all children.

What then does the nursery school contribute in all round development of children? How does

I'VE DISCOVERED SOMETHING new!
Dear Joan,
I discovered something new the other day and I just can't wait to tell you about it. It's called Vitamium, and you've never seen anything like it in cooking equipment.
John and I had such an interesting talk with the Vitamium representative last week. I want you to talk with him too. Since we've had our equipment I can't imagine how we ever got along without it. I've never had such compliments on my cooking and it's so easy! Best of all I know that my meals are more nourishing. You must come to see my new Vitamium soon.
Sincerely,
Vitamium
YOU CAN LEARN MORE ABOUT VITAMIUM FROM: Cookware Co. of America Hartford, Mich.

**WHICH NURSING BOTTLE FOR THE INfant?** Before choosing, ask your doctor and stop in at your druggist's and see the Hygeia nipples and bottles which many years ago were "streamlined" to make cleaning utterly simple, and today have been brought to a still higher state of perfection by additional improvements. See advertisement, page 574.

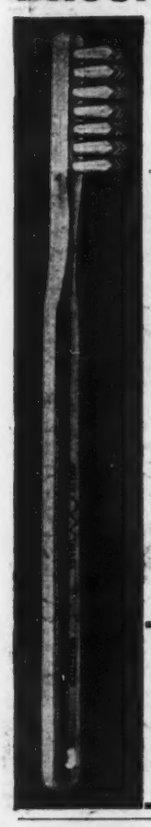
**EVERY WOMAN WHO IS ACTIVELY INTERested in giving her figure the best appearance** will find pleasure and profit in the free style booklet offered by the Maiden Form Brassiere Company, Inc., in their advertisement at the right. You can see a full line of Maiden Form Brassieres, Girdles, and Once-overs in almost any leading store. But why not have one of the style booklets sent direct to your address? It's yours for the asking.

**TOMATO JUICE CAN BE A RICH, FULL-bodied,** flavorsome beverage or a thin, watery flavorless juice which you drink only from a sense of duty. If you have not tried Kemp's Sun-Rayed Tomato Juice, you have a treat in store. It is pure, undiluted, made from whole tomatoes produced in Indiana's famous tomato belt. See advertisement, page 576.

**SIX TOOTHBRUSHES FOR SIXTY CENTS.** This is the remarkable offer made in the Takamine advertisement on page 574 and you will probably be surprised at the remarkably high quality of the bristles used in these brushes. They make it possible for you to have a frequent change, and are also fine to have in the house for guests. Use coupon to order.

**DO YOU KNOW A CHILD NEEDING SOME-**what more specialized care and attention than is available in the public schools. If so you will find it well worthwhile to write to some of the special schools whose announcements appear in the "Schools and Camps" section, page 571. Tell the nature of your problem to any of these schools and officials will be glad to give you their best suggestions and fullest cooperation.

**DENTISTS USE THIS BRUSH BECAUSE IT'S DESIGNED FOR BEST RESULTS!**



Correct, modern massage-brushing is possible *only* if the toothbrush is a properly designed instrument to facilitate the prescribed technique. TAKAMINE does more than meet dental requirements for quality and design. For, *only* Takamine encourages frequent renewal by its practical low cost that makes it possible for everyone to change to a new sanitary brush at least once every month.

**TAKAMINE**

6 FOR 60c

TAKAMINE CORP.
132 Front Street, New York City
If your drug or toilet goods counter cannot supply you with Takamines, send 60c to us for INTRODUCTORY package of 6 Standard Takamine Toothbrushes.
Name.....
Address.....
SEND COUPON

**EXPECTANT?**

Consult your doctor regularly before and after baby comes. Ask him about easily cleaned Hygeia Nipples and Bottles. New patented ridge prevents nipple collapse. Tab keeps nipple germ-free. Don't take chances. Insist on Hygeia, the *safe* nursing bottle and nipple.

**The A.P. UPLIFT Doctors Say**

that just before and after baby arrives it is important to give the breasts the upward converging control obtained only by the Patented A.P. Uplift, designed by Mme. Poix. Prescribed extensively and used by Hospitals and Maternity Centers.

Sizes 30 to 44
Mercerized Repp....$1.25
Flesh Tussah Silk.. 1.50
Flesh Mesh..... 2.00
Flesh Jersey..... 2.50

*If not at dealers, order direct giving exact bust measure next to skin.*

**G. M. POIX, Inc.**
103 Madison Avenue, NEW YORK, N. Y.


it provide for health needs of children? What does its program offer that the home does not? These are some of the questions which I shall try to answer in the next two articles in this series.

---

## ALL IN THE DAY'S WORK

MARY B. RAPPAPORT
Health Teaching Supervisor
Onondaga Health Association
SYRACUSE, N. Y.

*Every good teacher is also a good diagnostician. She is searching for causes. In this visiting report, Miss Rappaport indicates how a simple but fundamental educational problem was treated.*

"WHAT do you do with a girl who cries so easily that sometimes if one just looks at her she turns on a flood of tears?" Miss Meade looked quizzically at me as she spoke.

"That *is* a problem. What can be causing it?"

"Well she has been brought up in 'cotton-wool.' She is scared of the least draft."

Later, when I went to Miss Meade's room, I knew immediately which child she meant. The pale, solemn face made a striking contrast to the faces of the other happy-go-lucky youngsters.

The bell rang for recess. All the children except Ella eagerly put on their wraps. "Let's all go out to play today. Don't you think that would be nice? I will get my coat." Miss Meade turned to me as she spoke.

Ella timidly took my hand when I offered it. We started to run together. There was only time for a game of tag before we had to go back to the schoolroom.

"Why, Ella, just look at yourself."

Her eyes seemed brighter, and her little mouth turned up as she looked first at her own face and then at Miss Meade's smiling with her as they looked in the mirror.

"The next time I come, I'd like to see that color in your cheeks, wouldn't you too, Ella?" I glanced at her as I was leaving.

"Oh, yes!" was her reply.

Month by month we watched her progress. When her mother found that she did not "catch cold" the minute that she went outdoors, she, too, entered into the game with zest.

"I wish I had a picture of her, before and after," said Miss Meade the other day, as we stood watching the group vigorously running after their ball. "It might help some one else to realize the value of play outdoors."

## RHEUMATIC HEART DISEASE

*(Continued from page 506)*

desirable. Each new endeavor offers one more chance for a successful and earlier solution of the riddle of rheumatic heart disease. Meanwhile the necessity for prompt recognition of its symptoms is obvious. Yet often those persons in close daily contact with our children are least conscious of the ravages of the disease.

We, the parents, can help to attract public attention to this major child health problem! Not only must we ourselves watch for the incipient stages of the disease but we must also urge teachers, social and welfare workers, even nurses and doctors to do so and to expand the health programs of our respective communities in this special effort to eradicate rheumatic heart disease.

---

## TUBERCULOSIS UP TO DATE

*(Continued from page 517)*

early sign of trouble in the lung, which is also frequently ignored. In one who is tuberculosis-conscious, as in the case of Jennie, this early sign leads to an early diagnosis and frequent cure when proper treatment is initiated.

Marie worked as a stenographer for two years after graduating from high school. For three months before visiting a physician she noted loss of pep on returning home from work. For some reason or other she was unable to carry on her social activities as she had done in the past without tiring easily. She paid little attention to this, thinking that it was due to overwork. Soon however this feeling of tiredness was accompanied by a lack of desire to eat. Food had to be forced down, as she expressed it. This too was ignored until friends called her attention to the fact that she looked somewhat slimmer. At this time a physician was visited who on examination and after obtaining an x-ray picture of the chest found a lesion with a small cavity in the upper part of the left lung. Hemorrhage is not the usual sign of tuberculosis. It is, however, one of the manifestations that brings one most frequently to a physician. In fact, if it were one of the first signs of early tuberculosis the disease would be detected in the majority of persons in the first stage.

Alice worked as a bookkeeper for the last eight years. About seven years ago she spat up a little blood which she thought came from her nose. About two weeks before her admission to the sanatorium she

again expectorated some blood, and this was repeated the next day. This time she became alarmed and visited a physician, who found on further inquiry that she had not felt well for some few months. Her appetite and strength had waned, and she had lost some weight in recent months. These symptoms she attributed to overwork. Only when hemorrhage occurred did she become seriously impressed with the fact that there was something wrong. An x-ray examination of the chest, however, revealed a far advanced case of tuberculosis in both lungs.

These few examples serve to stress some of the ways in which tuberculous disease in the lungs manifests itself. It should also be evident from these histories that negligence is responsible in the vast majority of cases for progression of the disease from its first stage, when it is more or less easily amenable to treatment, to the far advanced stage, which is responsible for the large number of deaths from tuberculosis.

[NOTE.—In the July issue, Dr. Potter will continue his discussion with a chapter on the prevention of tuberculous infection and disease.]

## WOMEN IN MEDICINE

"The most important requisite for any one wishing to study medicine is the possession of a clear objective, a desire for the work so definite that all other things fade in importance, for medicine is a jealous mistress. Presupposing determination and a general aptitude for the work, the next most important factors are health, personality and money." Thus the *International Altrusan* tells in a recent issue what the prospective medical student may expect and must have.

Women are especially well suited to practice medicine if they are intelligent enough to practice sanely and scientifically, instead of emotionally. Women, scientifically trained, emotionally stable, can be and are among our best obstetricians. Not strength but wisdom and good judgment are needed.

Women in medicine should not try to overcome their feminine tendencies, the article declares; as women they have special contributions to make. They should prize their intuitive powers, remain and work as women. Being oneself leads to more success than imitating others.

Prof. Arthur Curtis of the University of Michigan says that the average educational standard of women entering medical school is higher than that of men. A smaller percentage of women who enter medical school fail than men. However, there are not as many women studying medicine now as there were twenty-five years ago. This is probably due to the other fields that have been opened up to them.

Although not many women have entered the field of surgery, women do make good surgeons and are increasing in number as opportunities for postgraduate study are available to them in the many specialized branches.

## "SO YOU WANT TO BE A PHYSICIAN"

A study of the interest patterns of members of various professions has been made recently by Prof. H. W. Hepner of Syracuse University. He found that the majority of experienced physicians had the following characteristics in their work:

*Physicians like:*

To work with scientific facts.
To mix work with play.
To do mental work at night.
To spend years in training themselves.
To read fiction, history, biography and textbooks.
To do research.
To sacrifice pleasures in order to realize ambitions.
To do teaching.
To have frequent change of tasks.
To do things where they can be quiet.
To attend to details.
To act as leader of a group.
To read business news.
To direct others and tell them what to do.
To do work where you must have an enthusiastic manner.
To persuade persons to do things.
To do things where they have to be active.
To take care of persons in trouble.
To invent mechanical devices.

*However, physicians dislike:*

To do things irregularly.
To work for a corporation or an employer.
To do salesmanship work.
To read and answer business letters.
To be supervised in work.
To bargain with others.
To take chances financially.
To assume responsibility for the acts of others.
To borrow money for capital.

Training is FUN with LITTLE TOIDEY
The secret of training the baby is keeping him comfortable.
Little Toidey
Why do babies like Little Toidey so well they use it without a squirm or cry?
Toidey & Traveler
Why do babies function almost automatically when placed on Little Toidey?
Why are babies trained almost after the first use of Little Toidey?
Toidey & Steps
Booklet TRAINING THE BABY attached to every genuine Little Toidey, tells why. Leading Juvenile Furniture Sections (usually in Infants' Departments) have extra copies of this book, free for the asking . . . or write us.
JUVENILE WOOD PRODUCTS, Inc.
Gertrude A. Muller, Pres.
H68
Fort Wayne, Ind.

Mention HYGEIA
when writing to Advertisers

By **OLIVER M. BUTTERFIELD** former staff member Columbia University. Foreword by S. J. Kleegman, M.D., Asst. Clinical Prof. New York University.

The author, whose article on Marriage in Reader's Digest drew an overwhelming response from men and women in every walk of life, here presents sound, simple, practical, definite, and detailed information about sexual relations in marriage.

***"Best manual to give."***
—Ohio State Medical Journal

**Part of Contents**

12 Rules for Happy Marriage
The Sexual Impulse
Differences Between Sexes
Sexual Awakening
Attitudes and Emotions that Help
Sexual Organs
Pre-Marital Physical Examination
Planning the Honeymoon
Impotence and Frigidity
Technique of the Sex Act
Sexual Adjustment
Frequency of Intercourse
Reasons for Various Positions
Handicaps—Physical, Psychic
Problems of Pregnancy
Childlessness
Birth Control

**Charts & Explanations**

The book includes also a number of excellent anatomical diagrams, by a distinguished authority on human sex anatomy.

**Price $2.00** [Postage 15c extra]
**5-DAY MONEY-BACK GUARANTEE**
If over 21, order book at once
**Emerson Books, Inc., Dept. 571-A, 251 W. 19th St., N.Y.C.**

# ACCEPTED FOODS

This department is a useful guide in the selection of foods of quality, advertised with truthful claims. All products in this section as well as any others advertised elsewhere in HYGEIA stand accepted by the Council on Foods of the American Medical Association, and are entitled to bear its "Seal of Acceptance." The foods listed here are but a portion of those accepted by the Council. If you desire information regarding any other food product, you are invited to write to HYGEIA.

A New Picture of GINGER ALE
MADE WITH
CLOVERDALE
Pure WATER SPARKLING
Here's new sparkle and freshness in GINGER ALE! Made with the famous CLOVERDALE Pure Mountain Water, direct from an 1800 ft. deep Artesian well. Available in both Pale Dry, and Amber. CLOVERDALE also makes an equally invigorating Sarsaparilla. If not yet on sale in your community write for details.
CLOVERDALE SPRING CO.
FROM THE BLUE RIDGE MTS.

Dr. Phillips
CITRUS FRUIT JUICES
Recommended for Children
*as a Source of Vitamins A, B and C*

Dr. Phillips Orange and Grapefruit Juices and Grapefruit Hearts are uniformly rich in vitamin C and always full of flavor. Tree-ripened, they are canned fresh from the grove under the most modern scientific and sanitary conditions. Easy to serve at any time, anywhere. Get several cans today.
DR. P. PHILLIPS CO., Orlando, Florida

Mention HYGEIA when writing to Advertisers

VAN CAMP'S
Evaporated Milk
Pure Cow's Milk with more than half the water removed by evaporation. Sterilized, Homogenized. Uniformly High in Quality.
VAN CAMP MILK CO.
Indianapolis, Indiana

WHOLESOME! DELICIOUS!
Durkee's

Purely American Vegetable Margarine, an "All-American" product, is nutritious, satisfying, an ideal food for cooking, baking, frying and general table use.
Durkee Famous Foods
Chicago, Ill. Norwalk, Ohio


## Do You Know—

1. How one would feel if one's appendix had burst? *See page 518.*
2. Where is "Treasure Island," and for what will it be used? *See page 492.*
3. What can be done for the mentally handicapped child? *See page 512.*
4. What different things should be checked on before sending a child to a summer camp? *See page 521.*
5. When diabetes was first recognized as a distinct ailment? *See page 496.*
6. What is meant when the "dirty nurse" is called for during an operation? *See page 488.*
7. How the American diet has changed during the last few years? *See page 541.*
8. How to cook green vegetables so that their vitamin values will be retained? *See page 544.*
9. How many kinds of malaria there are, and how they may be differentiated? *See page 528.*
10. What is the best way to pin diapers on a baby? *See page 495.*
11. Precisely what changes take place in a tuberculous cavity in the lungs? *See page 515.*
12. What is the "forgotten health problem," and why is it so called? *See page 503.*
13. Which vitamin may be gleaned from a source other than food? *See page 551.*
14. What would be meant if some one called you a practice athlete? *See page 531.*
15. What should be considered before leaving on a vacation? *See page 555.*
16. What sort of physical exertion can cause a stomachache? *See page 534.*
17. Would immunity to bee stings produce an immunity to snakebites? *See page 562.*


WHITE BREAD
An interesting set of questions and answers in booklet form. A copy may be obtained free by request to the
AMERICAN INSTITUTE OF BAKING
1135 Fullerton Avenue . . . . Chicago

THIS TOMATO JUICE IS NEVER THIN OR WATERY
Always drink Kemp's Sun-Rayed—the pure, undiluted juice of WHOLE tomatoes. Delicious. The Sun-Rayed Co., Frankfort, Indiana.

Church's Pure Natural Grape Juice
made from properly ripened grapes. Contains no added sugar, water or other substance whatsoever.
Free from the excess acid of unripened fruit.
Church Grape Juice Company, Kennewick, Wash.

Better Foods for Baby

*When you give your baby Gerber's Strained Foods, you are providing a meal in which the vitamins and minerals have been protected from the losses which frequently occur in home cooking methods. Selected fruits and vegetables, strained, cooked in vacuum.*
Gerber Products Co., Fremont, Mich.

Mention HYGEIA when writing to Advertisers

ASSURED HIGH QUALITY
C-H-B CALIFORNIA HOME
Tomato Juice
Tomato Catsup
Chili Sauce

DO YOU LIKE GOOD CREAM CHEESE?
HAVE YOUR DEALER SHOW YOU THE NAME
Breakstone's
WHEN HE CUTS YOUR ORDER

JELKE'S GOOD LUCK MARGARINE
Dated for Freshness
AND APPROVED